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THE

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WHOLE SERIES, VOL. XXIII. THIRD SERIES, VOL XV.

WILLIAM M. WARREN,

DETROIT, MICHIGAN.

1899

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Original Communications.

*CLINICAL NOTES ON ASTHMA AND ITS TREATMENT.**

BY BEVERLEY ROBINSON, M.D.,
New York.

Among the diseases the practitioner is called upon frequently to treat, none is of greater interest than asthma. Possibly this interest is due in part to the fact that its immediate causation is at times very obscure. No doubt, however, it is accentuated much by the fact that when we are sure as to the cause of the asthmatic attack, or condition, we can in many instances be of great service to the sufferer. This statement is, of course, more correct where we encounter cases which are relatively of late date, and where, if the etiology be determined, we can be confident as to our power to relieve or cure.

The cases of so-called nervous asthma, or asthma merely functional and without fixed causation, have been in my experience relatively very infrequent. I do not doubt that they do occur, because many reliable authorities speak of them in no uncertain terms. And yet I do believe, when we are better

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informed, such examples of purely functional asthma will dwindle immensely, and perhaps, indeed, no longer be described. I do not wish to be misunderstood. In the majority of, not to say all, cases of asthma, there is probably a certain sensitiveness of the central or peripheral nervous system which accounts in a measure for the recurrent attacks of this affection. What I wish to insist upon, however, or emphasize most emphatically, is that despite the existing nervous irritability, the asthmatic attack would rarely occur were there not some other discoverable cause which more advanced researches will reveal to us.

Conditions of the blood are often ignored which, if closely inquired into, will throw light upon an otherwise very indefinite causation. Malarial toxemia is frequently present and yet ignored. The reason for this is because, first, malaria may be present, causing slight enlargement of spleen and liver, moderate secondary anemia, engorgement of the nasal, laryngeal and tracheal mucous membrane, or other parts of the upper or lower air-tract, and yet be lost sight of, or its presence questioned or doubted. Again, this is true where there is apparently no physical change of organ; and yet constant or frequently recurring symptoms of headache, backache, disordered stomach, general fatigue, inertia, irregular, chilly sensations, inappetence, constipation, or diarrhea, may be proof of or point toward it. It is wisdom for an observing practitioner to be quick to see and act in accord with its recognition. If a blood examination be made under one or other of these circumstances, shall we be definitely informed as to the malarial nature of the condition preceding the asthmatic seizure? Occasionally, yes; more frequently, not to say usually, no, in such instances. If there has been a sudden chill, followed by rise of temperature and sweating, and if at the time of the chill and previous to the giving of quinine internally a skilful microscopic examination of the blood be made, the plasmodium malariæ should be found usually, but not invariably. When we are face to face with the asthmatic attack, how should we proceed, given a possible or probable malarial causation? If it be only indefinite, and yet no other cause be found, I advise Fowler's solution of arsenic to be given in increasing doses up to its physiological effect. If the bowels are notably constipated and the liver evidently inactive, I advise Warburg's extract in five-grain doses three or four times daily. If anemia be present I advise quinine, iron, and arsenic in a suitably formulated pill, the following being a favorite with me: 1 grain of reduced iron, 2 grains of sulphate, or preferably the muriate, of quinine, and $\frac{1}{60}$ to $\frac{1}{30}$ grain of arsenious acid, three times daily after meals. Of course, if the asthmatic attack be severe, we should also employ our antispasmodic remedies, such as belladonna, chloral, nitroglycerin, etc., judiciously. We should also permit patients to smoke and inhale from a cigarette d'Espic, *Datura Tatula* (Savory and Moore), or of simple nitre-paper. As a last resort, an inhalation of a small quantity of chloroform or a hypodermic of morphine and atropine may become our only satisfactory help in time of greatest need.

As to gout and rheumatism as causative factors of asthma, what should be said? I am in accord with those who find in these constitutional conditions an underlying influence of great power in causing nervous irritability and characteristic appearances of the throat. Wherever we have the clear history of a previous attack of acute rheumatism or gout, and where, in addition, we have cardiac, joint, or renal signs and symptoms which plainly indicate one or other diathesis, we rightly infer many times that the asthmatic attack is of similar origin. Of course, accidental circumstances, such as overfatigue, errors of diet, exposure to cold or wet, great anxieties or cares, may hasten, or indeed occasion, an outbreak of asthma, when without these incidental occurrences the dyspneic attack would not have shown itself.

To indicate how important it is at times to recognize the inherent gouty poison dormant in the system, so as to effect speedy amelioration or cure of a patient's symptoms, I would refer for a moment to a dear friend and patient now deceased several years. The case was that of a lawyer, eminent in his profession, about fifty years of age, who had on several occasions gouty manifestations of the joints, marked torpidity of the liver, and a considerable deposit of lithates in the urine. For these symptoms he had been to Carlsbad for treatment, and, thanks to this cure and marked abstemiousness in his daily habits, he was able during quite a while to be in a fairly comfortable bodily condition. On one occasion, after a prolonged period of rest from annoying intimations of disease, he was attacked every afternoon at a particular spot, during his walk up town, with marked dys-

pnea. To explain it, if possible, the urine was carefully examined, the heart and lungs interrogated, the diet and habits rigidly catechized, without any positive finding resulting. Despite the trial of various compounds given, so as to meet rationally any hidden or mysterious conditions which Nature was holding concealed, my patient's difficulty of breathing was in no sense relieved. Finally, I concluded that renal inadequacy, due to gout, was the efficient cause, and that substances ordinarily eliminated through the kidneys, but now retained in the system, were the explanation of his suffering. Proceeding upon this theory, I ordered colchicine granules, one milligramme in each granule, three or four times daily, and very soon my patient was completely restored to health for a time. During a few days following the use of colchicine the urine, which previously had seemed normal, was loaded with lithates, thus showing the action and beneficial effect of the alkaloid. Aside from purely diathetic conditions, it is highly probable that anemia, accompanied with constipation, dysmenorrhea, and pronounced general neurasthenia, is more than sufficient to initiate in certain susceptible women attacks of asthma which can only be effectually treated where these morbid states are judiciously dealt with.

As to reflex causes of asthma. In the nose and throat we find morbid conditions, with which we are all at the present time more or less familiar, that occasion it. When they exist it is clearly indicated, as a rule, to do what is essential to relieve them. Thus, if more or less complete occlusion of the nasal passages exists, owing to hypertrophy of the turbinated bodies, a deviated septum, soft gelatinous polyps, or in children an adenoid growth, is present in the nasopharynx, or much enlarged faucial tonsils prevent normal breathing, we cannot feel satisfied with our care of the patient unless operative interference be undertaken to modify or remove these evidences of disease. While this is true it should be admitted to-day that several prominent throat specialists have exaggerated, or unduly magnified, the diseased conditions of throat and nose as causative in producing asthmatic attacks. I have in mind a physician of prominence in another city who was greatly annoyed with occlusion of the nasal passages from gelatinous polyps. His periodical attacks of asthma had been attributed to their presence. They were skilfully removed by a rhinologist, and yet the attacks soon returned with nearly their old-time severity. I had under my care not many years ago a young man, now a promising political leader, whose nose was greatly obstructed by pronounced deviation of the septum. The drill and trephine were used, and fair nasal breathing thus obtained. Despite this treatment, with satisfactory result from the specialist's standpoint, morphine injections, hypodermically, had to be resorted to on several occasions subsequently in order to afford notable relief to the breathing.

In chronic gastric catarrh, brought on by errors of diet or alcoholic habits, frequent lavage of the stomach and a regulated regimen have afforded great relief in more than one instance to the frequency and intensity of asthmatic seizures. In some instances in which the total acidity of the stomachal contents, taken after a test meal, would seem to indicate, when allied with severe, repeated attacks of gastralgia, a possible beginning of ulcer of the stomach, I have little doubt that a prolonged use of Vichy or Vals water, with an occasional mercurial purgative, not only afforded relief to the stomachal condition, but also lessened the seriousness of the asthma.

We now come to a consideration of what, after all, are the large number of asthmatics we are likely to see. They are the bronchitic cases — cases in which there is also more or less development of emphysema. Taking cold, as it is said, apart from every other consideration, is what seems to the patient the essential cause of his asthma. He will get along peacefully for weeks without any evident pulmonary distress, and then, owing to slight atmospheric changes, wet feet, sitting in a draught, going from an overheated room to the outside atmosphere, very soon he will notice more or less oppressed breathing and all the usual asthmatic phenomena. In very many of these cases, although they may claim that between the periodic attacks they feel perfectly well, yet when they are questioned closely we shall find almost invariably that upon slight exertion they suffer from short breath and cardiac palpitations. If we examine the chest carefully the percussion note, as well as ascultation, shows here and there patches of pronounced vesicular emphysema. The latter may have developed slowly and insidiously; nevertheless, when we watch our patients closely, we shall find that the emphysema extends and involves more lung tissue with the recurrence of each asthmatic attack. The development of the emphysema in its initial stage is not, however,

always obscure or uncertain. Very often, and particularly in children, whooping-cough, croup, enlarged tonsils, acute bronchial catarrh, may have previously existed and are quite sufficient to occasion a slight organic condition of emphysema. Where the emphysema is present, recurrent attacks of acute bronchitis are apt to follow for a very slight cause. The mere fact, for example, of the inhalation of an impure atmosphere for a short time will frequently cause the development of bronchitis. If we listen to the chest we shall find sibilant and sonorous ronchus in abundance, varied at times with moist sounds, even though the secretion is often in small quantity (frothy or viscid), which leaves us in some degree of uncertainty as to the precise condition of the lung tissue.

If the lung, instead of being of good resonance (not to say hyperresonant), becomes, in special areas at least, dull and non-elastic, does not expand as it should, and we also have muffled or bronchial voice and whisper, we are often undetermined in our judgment as to how much pulmonary tissue is involved.

We are also in doubt as to the pulmonary condition in regard to inflammation. Have we to do with bronchopneumonia affecting one or more lobules? Have we a local atelectatic condition due to the plugging with hard, inspissated mucus of a large or small bronchial division? Is it only increased pulmonary congestion accompanying bronchial inflammation? Or, and especially when the râles are superficial and moist, are the pleural surfaces somewhat inflamed, and do their contact and rubbing together give rise in part to the stethoscopic signs we surely find? These and other questions are clinically most difficult to decide and accept for the *ipse dixit* which at best conceals ignorance. I believe that most men of large clinical experience will reecho my expressed thought. Of course, the presence or absence of fever, the number of leucocytes found in a careful blood-count, the local pain aroused during respiration and cough, will not infrequently help us very much to reach a rational and tolerably satisfactory judgment. Where the bronchitis is clearly defined and the secretion slight, our main effort should be to stimulate the latter by appropriate means, and here I find small repeated doses of ipecac, tartar emetic, grindelia robusta, chloride of ammonium, and iodide very useful. Where the bronchitis is also evident and yet there is much bronchial secretion, belladonna or atropine must be combined in small or moderate doses with the drugs previously named, or be given with a little camphor and quinine in capsule or tablet form, or else, what is often preferable, simply alone, until their physiological effect becomes manifest. Where the emphysema and bronchitis are clearly defined, and where the asthma is also pronounced and threatening, we cannot wait always for the relatively slow and continuous effects of the drugs referred to, and here again we must have recourse for temporary results to inhalation of the fumes of the different antispasmodic cigarettes, of the leaves of stramonium or tobacco, the repeated use of oxygen gas, the timely administration of Hoffman's anodyne, alcohol, hot coffee, capsules of ether or chloroform, etc., always remembering that in very many cases nothing will give relief even for a while, unless it be chloroform by inhalation or morphine hypodermically.

Where, in connection with the previous conditions, we have evident cardiac distention, as shown by increased area of dulness, epigastric beating, distended jugulars, rapid, depressible, weak, sometimes irregular, pulse, cyanotic lips, face, and finger-tips, we must recur to the use of nitroglycerin or the nitrites in frequently repeated doses; or to a soluble salt of caffeine (salicylate), either by the mouth or hypodermically. Occasionally blood-letting by bleeding from the arm or the use of leeches, or wet-cups to the chest or epigastrium, will afford relief more or less lasting, according to circumstances. Usually, I regret to say, the relief is only temporary, and the weakened, distended right heart is soon again powerless to struggle against the ever-present conditions of lung involvement and vascular and nervous paralysis. It is specially under these conditions that we must be particularly careful in our use of a remedy like nitrite of amyl when used by inhalation, which instead of affording marked relief by relaxation of the arteries only seems to occasion further and more intense pulmonary congestion, and thus adds an additional obstacle in front of a right heart already overtaxed. Within a few weeks of writing this I have had occasion to notice these dangerous effects. In the case of an old asthmatic patient who was suffering, and from whom I was desirous of withholding a morphine injection in the fear that it be repeated too frequently and thus give rise to the morphine habit, the rapid inhalation of only three minims of nitrite of amyl increased the dyspnea suddenly to a most alarming degree. The veins of the neck became largely dis-

tended, the face intensely cyanosed, the eyes suffused, glassy, and so prominent as to appear to start from their cavities. Frequent and labored breathing developed immediately, followed by repeated efforts of expectoration, during which sputum partly frothy, partly thick, and mucopurulent, was expelled with great difficulty. All these and other serious symptoms gave rise to a graphic and distressing picture not soon to be forgotten. In a short while, however, thanks to the timely help afforded by a hypodermic of tincture of strophanthus, there was a visible temporary amelioration. Despite our best efforts, however, the patient failed rapidly, and died a few days later. At the autopsy the most marked pathological feature of the case was the advanced degree of pulmonary emphysema. In one spot on the anterior border of the right lung evidently one or more of the marginal vesicles had been ruptured, and we noticed a very large sac filled with air and surrounded by the visceral pleura. The sac itself was equal in size to a turkey's egg.

One of the difficult matters to decide in the treatment of asthmatic attacks is when and how frequently we should give morphine injections hypodermically. In the majority of cases that have come under my care I am confident that no remedy will give such immediate and considerable relief to the acute suffering. On the other hand, we have the just dread of beginning a habit so pernicious and so difficult to cure, if once established, that I am compelled to counsel great care in its use. This counsel is eminently wise for attacks, even though severe, that are often repeated.

Again, it should be known that morphine injections will not invariably afford relief. There are times when morphine in any ordinary dose will aggravate rather than subdue the attack, and even add gastralgia to the intense dyspnea from which the patient is already suffering so much. When, moreover, the patient's urine contains an appreciable amount of albumen and affords other evidences of nephritis, it is often very hazardous to recur to the use of morphine. This is particularly true where the pupils are notably contracted. I have good reason to believe that by administering morphine under like circumstances we may precipitate a rapidly fatal uremic attack.

The question of change of locality is frequently one which arises and which is so difficult to solve. In general, we would have our patients seek atmospheric conditions quite dissimilar to those in which the attack originates and continues despite our watchful care. If the patient be resident of a city or large town, first of all we should have him change his neighborhood for awhile, and often even this slight change is useful. If this proves unavailing, and he be living near the coast, we would have him go to some healthy inland place of moderate elevation, free from dust and cutting winds, if possible. If the town be inland where the person first becomes a sufferer, we should strongly insist upon a prolonged stay by the sea. And yet I regret to add that all our efforts in this direction are often unavailing and the patient continues to suffer about in the same way, no matter how often we change the locality in which he lives. There may be and often is temporary relief. Quite frequently we learn with great satisfaction that the patient has obtained just what he most desired, viz, relative great quiescence from suffering, or, indeed, the diminished frequency of the attacks. Unfortunately, we cannot count upon this well-being as durable, and sooner or later the asthma is prone to return with its former intensity. Personally, I am inclined to believe, after considerable experience and reflection, that the climatic conditions which shall prove best for any particular case of subacute or chronic bronchitis are also those best suited to the bronchitis when complicated with asthma.

DISCUSSION.

Dr. F. I. Knight: I think Dr. Robinson has done a good service now and heretofore in calling attention to the constitutional element in cases of asthma. The gouty or the malarial condition which is often the excitant of the attack is undoubtedly often neglected. It seems to me that asthma is a very complex thing. Asthma is due, first, to an underlying neurosis; secondly, to some lesion in the bronchial tract, I think almost invariably, if not always; and thirdly, to some excitant. In treating the paroxysm, if we can relieve or modify any one of those factors we can stop the paroxysm. I had a patient who could always relieve an attack of asthma by gambling for high stakes. It is possible, in certain cases, to change or alter the organic lesion; but we can remove the excitant, or remove the patient from the excitant. Englishmen who are subject to asthma will relieve it at once by going from the country up to the city. I know a patient who

always has asthma in one hotel in Boston and never has it in another, and the hotels are within a block of each other; and no one has been able to tell the cause. So we have these various factors on which we may work in the interval. The gouty or malarial constitutional condition which I consider the excitant may be so modified that the patient's attacks may be relieved; so it is with those cases where an organic lesion in the upper part of the respiratory tract acts by reflex on the air-tubes below. Often when polypi are removed there is only temporary relief, and then some other irritant comes in by reflex or otherwise. I might mention here the theory of Berkart, that the lesion in ninety per cent of cases is in the lungs, and comes from measles or whooping-cough or other inflammatory affections of childhood. Dr. Hyde Salter put the proportion at eighty per cent. I think this may be an exaggerated statement, but since reading it I have traced a large number of cases back to inflammatory conditions in childhood. In regard to the bronchial cases and their relief, I should, perhaps, urge more strongly than Dr. Robinson the value of the iodide of potassium. No one remedy has served me so well as this. In the epiphysematous cases there is one thing which above all should be insisted upon, and that is rest. The patient who has been miserable with repeated attacks of asthma at night for weeks and months may be, perhaps, relieved for considerable time by restricting his movements and administering strychnine freely. It is an interesting subject, but certainly a very perplexing one, and worthy of a great deal more study than is usually given it; and if men will take the pains to investigate individual cases and not consider them simply cases of asthma and treat the name, but will try to get at the conditions which underlie them, they will have much better results in their attempts at treatment.

Dr. V. Y. Bowditch: It is an interesting fact to me that not many weeks ago Dr. A. C. Klebs, of Chicago, lately of Citronelle, Ala., told me of some striking results from the use of diphtheria antitoxin injections in cases of asthma, at the suggestion of (I think) Revillod, of Geneva. Although very skeptical as to its efficacy, he had tried it in the case of a young girl, about ten years old, who had been subject all her life to attacks of asthma. In her case he had used it once or twice with apparently very marked benefit. The patient is really too young to have the mere moral effect of trying a new remedy in such cases taken much into consideration. In another case very marked improvement was noticed in a lady who for years had been a great sufferer, and who had tried almost every known remedy. The good effect of each injection, moreover, lasted many weeks, and at last accounts she was better than for many years before. I give these suggestions for what they are worth without further experience. They come from a careful and cautious observer, not easily convinced of the efficacy of new remedies, but who was at the time certainly impressed.

Dr. Frank S. Johnson: I wish to add my testimony to what Dr. Robinson has said about the condition of constitutional infection, and the necessity of determining primary cause. But in almost every case of asthma, whatever the primary cause may be, we have to deal with bronchitis and spasm, and in order to obtain prompt satisfactory results, no matter whether the primary poison is eliminated or not, we must direct the treatment temporarily to the immediate disturbance. I concur most fully with what Dr. Knight has said, that the most important remedy is iodide of potash. It should be given in moderate doses, continued for weeks or months, if need be. The relief of the paroxysms is the important thing in the patient's extremity. In mild attacks this may be accomplished by the administration of belladonna and chloroform internally. Chloroform given internally acts more slowly than by inhalation, but the action is more prolonged, and it is safer. In severe paroxysms the nitrites are often very useful. I prefer nitroglycerin. Its action is very prompt, almost as prompt as nitrite of amyl. The vasomotor effect of one one-hundredth of a grain can often be felt within two minutes. The dose may be repeated every ten to sixty minutes as required. Nitrite of amyl is much more dangerous in the hands of the patient than nitroglycerin. Morphine is safer and more useful than the nitrites in asthma with greatly embarrassed right ventricle.

Dr. J. B. Walker: I would like to refer to one climatic factor that is within every one's reach everywhere. This is sunlight. A patient living on one side of a street may be exempt from asthma, while on the other he may be affected. This may be due to the fact that on one side he lives in a shady room, and on the other side in a sunny one. This is a factor of no small moment in not only the asthmatic, but in all subacute and chronic bronchial disorders.

Dr. R. G. Curtin: Dr. Walker's remarks about a person being able to live on one side of the street and not on the other recalls to me the history of a case. Some of you probably know that Market Street in the past was supposed to be the dividing line between the older and the newer society of Philadelphia. A man who lived on Walnut Street at that time found that if he walked across Market Street toward the north he would instantly have an attack of asthma, which was relieved by returning to the south side. Dr. Knight's patient reminds me of a confirmed asthmatic who, whenever he had a severe attack of asthma, was always relieved by sitting on a chair in a cool damp cellar when the day was hot and dry.

Dr. Jacobi: I think, Mr. President, the ground has been gone over pretty thoroughly, and nothing has been left untouched. Reflex neurosis, particularly nasal, I have myself charged with being the occasional cause of asthma, but I know that the large majority of cases of asthma I have seen were connected with bronchitis. There is rarely a case that will not exhibit the symptoms of diminished respiration and some dulness over small parts, very frequently over large parts, generally posteriorly and over the lower lobe. It is mainly these cases that are benefited by iodide of potassium. They are not so much affections of the mucous membranes as of the connective tissue of the bronchial tubes and their surroundings, with thickening of the walls. The term "peribronchitis" has been dropped by a great many, but I think it is a good word to show exactly what it is meant to signify. As the attacks mostly come on in the night, I do not hesitate to give a dose of morphine, with or without chloral hydrate, every night for a long time, and not infrequently it will be the first step in the treatment of a cure. I give good doses, always the same. I never had to increase it, and never developed a case of morphinism in an asthmatic person so treated. Then, it is necessary that the window should be open enough to admit air. The attacks come on when there is carbonic acid and other poisonous gases in the air, when the medulla oblongata is oversupplied with carbonic acid and undersupplied with oxygen. As far as emphysema is concerned, it may be sometimes incurable, but it can be benefited a great deal. One other thing: let your patients be practised in forcible expiration, which may be helped along by compression of the diaphragmatic region, according to the plan of Gerhardt and others. The patient may use a towel for that purpose, which he works himself. An additional help for the purpose of improving expiration is snuff. I make them sneeze very hard four, five, ten times every day—a very satisfactory method, and not very expensive.

Dr. J. H. Musser: In the management of this affection reference has been made to, and I concur in the necessity of, hygienic and largely to dietetic measures for its relief, not excepting climatic influences. With regard to remedies, asthma is the disease which exemplifies the law that the more incurable the disease, the more remedies there are for the affection. It certainly is a disease that requires the study of each individual case. I am satisfied in a number of cases, as Dr. Jacobi remarked, that sedatives are very beneficial. I am sure I have seen, barring the fact that the disease may probably have disappeared independently of my management, one instance where the use of morphine every night, hypodermically given, cured the patient. The object was to anticipate and prevent the occurrence of the paroxysm. The patient was in the family of a physician, and the physician was able to watch the effects, beginning at first with doses sufficient to control the spasm, and each night lessening the dose, until finally the patient was able to do without the morphine, when the paroxysms had disappeared. I do not fear in asthma, barring that form of asthma which is purely a neurosis, the development of the morphine habit; in fact, I have never seen (although I have seen a large number of cases) the morphine habit occur in asthmatic subjects. I think it is a very good rule to keep in mind in the management of all cases that in the neuroses we are liable to create the morphine habit, but rarely in organic disease, as rheumatoid arthritis and other conditions of that kind, is it likely to occur. I have also used iodide of potassium, varying the dose with the individual and increasing it until we get a physiological effect of the drug. In the cases in which operative measures are first resorted to, if we follow immediately after the operation with the use of the drug we can prevent that recurrence which often does unfortunately take place. In bronchial affections, and particularly in the class of cases where, in early childhood, there were inflammatory conditions, iodide of potassium seems to be of a very great advantage. Another group of drugs which, in some instances, serve me

well are strontian salts and nux vomica. Nux vomica has been very satisfactory, continuing it over a long time. Such dose is given as produces physiological effects, then reducing the dose, bearing in mind always that the patients become accustomed to the remedy. From time to time you may increase the dose in order to get its effects. In this manner I have had patients take as much as one hundred drops of tincture of nux vomica three times daily. In another instance with the nux vomica given in this manner and the morphine at night, watching the effects and gradually diminishing the dose of morphine, I have one patient absolutely cured. There may be other drugs that occur from time to time which may be of use, but these are the remedies that occur to me. We must not forget in the treatment of asthmatics the value of inhalation, and especially of treatment directed to the local condition. In examining the sputum of many of these asthmatic patients we find the infection of streptococci, indicating that there is a localized infection. These cases I am sure are the most difficult to manage, and for them we must resort to climatic influence.

Dr. Blackader: We all agree, I am sure, with Dr. Musser in emphasizing the importance of first removing, as far as possible, any reflex source of irritation, and then carrying out a vigorous constitutional treatment of the disease. Personally I agree with him as to the value of morphine in relaxing spasm, if employed with caution over short periods of time; but I differ from him when he minimizes the danger in these cases of the morphine habit. There is, however, another drug of which I stand in still greater dread. That drug is cocaine. Two patients of mine who, to obtain relief from a troublesome bronchial asthma, were sent to climatic resorts in the South, returned slaves to the local employment of cocaine. When nasal troubles exist, the relief that cocaine affords is prompt, but only temporary. In the end it unquestionably increases the local damage; more important still, it ruins the patient morally. As a society we should raise our voice in condemnation of its use.

Dr. W. D. Robinson: Exhibition of iodide of potassium causes gastric distress and nausea. When given in junket it can be safely administered without trouble, and the doses largely increased.

Dr. Musser: I want to indorse what Dr. Blackader said in regard to cocaine. It is infinitely more dangerous than morphine.

Dr. Coleman: I want to speak in corroboration of what Dr. Blackader said concerning the use of cocaine. I have a patient now under my care who has become addicted to the cocaine habit by using it as a spray, and he uses as much as an ounce of the crystals in two or three days. I do not know of any such amount ever having been taken, but he has reached the point where he can scarcely go for fifteen minutes without using the spray.

Dr. E. O. Otis: Reference has been made to the beneficial effects of removal from one room to another, and from one side of the street to the other. As illustrative of this, a case occurred to me a few days ago where the asthmatic paroxysms were most severe and distressing, and in relieving which all the ordinary and extraordinary methods of treatment failed, including subcutaneous injections of morphine, and momentary relief was only obtained by the inhalation of ether. The removal from one room to another, and the substitution of pillows made of other material for feather ones, appeared to be the determining factors in relieving the attack.

Dr. Robinson: I have two things to say; one is for the people: I trust that if any ladies and gentlemen who are now in this fair region have been willing to listen to what has been said, they are also willing to recognize that it is wisdom to take no panacea for the relief of asthma, but to put themselves in charge of a far-seeing and intelligent physician.

One point not referred to in my paper is a question in regard to the use of morphine. I have been on the lookout for it, but have not yet struck it. A point I made was in reference to the use of morphine injections in uremic conditions, and as to when we could use morphine injections to break up uremic convulsions, and when not. We all know that the late Professor Loomis certainly acted in a very able and satisfactory manner when he showed us in certain acute conditions there was nothing better to break them up than injections of morphine; but we also know that in certain cases of chronic nephritis it is a very dangerous remedy. In looking over Dr. Loomis' cases I notice that in every instance, without exception almost, where it is mentioned, the pupil is indicated as being dilated. Wherever a patient is shown to have kidney trouble I always look at the pupil before I give my hypodermic of morphine. If contracted I will not give it. In chronic asthma recollect that we have to do with

people of a certain age and a certain amount of interstitial nephritis. Many have a certain amount of albumen in the water. I think that the question of whether they have interstitial nephritis will depend upon the specific gravity of the urine. We are not always able or ready to make a careful urinalysis and estimate quantitatively what there is to be found, and I simply direct attention there. Knowing as we do that the interstitial nephritis probably exists, and with an interstitial nephritis that there is a considerable risk at times in giving morphine injections, let us be a little bit careful.

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*MEDICAL SKEPTICISM.**

By Warren B. Hill, M.D.,
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Medical skepticism is a malady that has afflicted the medical profession for a great number of years. In ancient times, and even to within the recollection of the "oldest inhabitant," medical credulity held sway. As empiricism gave way to rationalism a pronounced tendency manifested itself in the profession toward medical skepticism. All that was exact in medical science was attributed to surgery, and it, being a simpler study than internal medicine, readily adapted itself to the conditions brought about by recent investigations along the lines of bacteriology and pathology. Surgeons have always been more or less skeptical regarding the action and effects of internal medication, and it is a deplorable fact that some of the most eminent writers of our day on practice of medicine and therapeutics have distrusted the remedies which they were obliged to use. This condition has spread to such an extent among the profession at large that the interest manifested by them in therapeutics is so slight that the committee of arrangements of our State Medical Society had provided only one paper for this branch of medical science on its annual programme, while the attention of the profession is directed towards surgery, where to see is to believe.

These are lamentable facts when one takes into consideration that a large proportion of these cases coming under the observation of the practitioner are curable by internal medication, and the entire work of anatomy, physiology, pathology, etc., is but the foundation for which therapeutics should be the superstructure. Paraphrasing the Bible, Barthlow has said that the three medical graces are diagnosis, prognosis, and therapeutics, but that the greatest of these is therapeutics.

It is therefore the purpose of this paper to discover, if possible, a cause for this skepticism and to suggest a remedy. Owing to the fact that there is a tendency in a large percentage of cases toward recovery without medical interference, it is impossible for us to determine exactly the importance of drugs in the cure of disease. Idiosyncrasies and the "personal equation" are factors which circumscribe our efforts toward exactness in internal medication, but that which shakes the faith of the greatest number in drugs and sends hundreds of practitioners, both young and old, over to the side of skepticism is the unreliability of the preparations of drugs as found in the open market. There is annually placed upon our market thousands of pounds of ergot which has little or no therapeutic value, and yet we do not know enough of the chemistry of ergot to make a chemical assay for our own protection. The activity of the various samples of strophanthus varies to such an extent that Dr. Houghton, in determining the minimum fatal dose per gramme of weight, found that in fourteen samples there was a variation of .00010 to .00033 cubic centimeters, which shows that had tinctures been made of these various samples one would have been more than three times as strong as another. Of all the important drugs of materia medica, perhaps there is none more variable in its activity than cannabis indica, yet it is impossible to make a chemical assay because, while the active principle of hemp is a resin, there are other resins which are inert and inseparable from the active one.

These are a few of the difficulties in the way of procuring physiologically active drugs. If the crude drug is variable in activity, then the preparations must also be, and if we are not able to prescribe with precision we are prone to become skeptical. There is even such a variation in the activity of glucosides that one sample of strophanthin was found to possess ninety times the activity of another, yet both samples were purchased as pure strophanthin. In the light of this fact is it strange that a doctor, having used a drug with success upon a patient and subsequently, under the same conditions, found it to be

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*Read before the joint meeting of Fox River Medical Society and the Northwestern Medical Association, held at Oshkosh, Wis., Oct. 25, 1898.

absolutely worthless, should renounce drugs as feeble and uncertain remedies in the light of modern research?

The Remedy.—The remedy for this state of affairs lies in the revision of pharmaceutical methods. It is possible to have physiologically active drugs. Those whose activity is represented by chemical compounds susceptible to isolation, such as alkaloids, should be chemically assayed, and the physician using them should either procure such galenical preparations or use the alkaloid itself. Those drugs whose activity resides in the unstable compounds, such as glucosides, which are so easily decomposed as to make their isolation and chemical assay uncertain, should be tested physiologically before being placed on the market. Ergot may readily be tested by its effect upon the circulation of the combs and wattles of cocks. The activity of cannabis indica may be determined by the incoordination which it produces upon lower animals, such as dogs, while those drugs which influence blood-pressure and respiration may be tested upon lower animals by the kymograph, and other apparatus devised for that purpose.

The practice of using animals to test the physiological action of drugs is not a new one. Indeed, nearly all of the drugs which have been brought out in recent years have been tried physiologically upon the lower animals in order to determine their therapeutic value; but up to the present time there has been but little done in this direction for the purpose of determining the activity, physiologically, of drugs before putting them on the market. Most of this work has been qualitative, but since the advent of serum-therapy a quantitative assay has been made possible. All diphtheria antitoxin has been subjected to this quantitative test, and while we do not know the active ingredients of the serum, we measure its dosage in a unit of physiological activity. The same process is possible in determining the exact physiological strength of galenical products made from drugs which are not amenable to chemical assay.

In a paper read before the American Medical Association, Dr. Houghton, director of the pharmacological laboratory of Parke, Davis & Co., describes his method of standardizing tincture of strophanthus by physiological tests, which is briefly outlined as follows:

Having determined that the minimum fatal dose of tincture strophanthus will average about .0,00015 Cc. per gramme weight of frogs, when a new lot of strophanthus seed is to be tested a number of frogs of approximate weight are divided into batches of five. The first batch is injected with a minimum fatal dose of a standardized tincture, which should kill about three out of five. A tincture is now made by the customary formula of this new lot of seed, and another batch of five frogs is injected with this product. If this does not have the same effect as that of the standardized product, a second or third batch is injected until the minimum fatal dose is obtained. This is compared with the standard fatal dose and an estimate made as to the variation. A new tincture is now made, taking such variation into consideration, and a sufficient amount of the crude drug used to make the product equal to the standardized product. This is again injected into a batch of five frogs, and if the result is satisfactory, the formula used for making this tincture is used for the entire lot of the drug from which the sample has been taken. With a tincture of this kind it is possible for the physician to prescribe with a great degree of precision, and my own experience with drugs physiologically standardized has convinced me that medicine is a much more exact science than it is credited with being. This method of standardization may be employed in the manufacture of preparations of many drugs, and I believe it would be wise, in the revision of the Pharmacopœia, to have an important place given to physiological standardization of important drugs which cannot be chemically assayed.

THE THERAPY OF IRON.

By A. L. Benedict, M.D.,
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In regard to therapy with iron, there are many factors to consider, *pro* and *contra*. First of all, we must answer the arguments of those therapeutic nihilists who insist that iron, at least in inorganic combination, is not absorbed by the body and that the administration of the ordinary official salts can have no possible effect beyond preventing the elimination of iron by the body. On the face of the matter, it is apparent that those who hold this view claim either too much or too little. If we grant that iron introduced into the alimentary canal forms no part of the body, how can its mere presence in the stom-

ach and intestine prevent the elimination of iron from the tissues? We certainly know of no function of iron, either elemental or in compound, that is performed within the digestive tube. Neither is it rational to suppose that iron is eliminated from the body for the mere sake of having it appear in some of the excretions. Perhaps it is entirely a waste of time to refute this belief, which is really nothing but a half-understanding of Bunge's theory that inorganic iron in the intestine united with hydrogen sulphide and thus saved the iron in organic combination for more useful purposes. A number of experimenters have opposed their results to Bunge's, among them Honigmann, who noted the intestinal contents as they passed a fistula in the lower part of the ileum of a patient. There was no evidence of hydrogen sulphide formation—though no elaborate chemic test was made—yet only a fifth of the iron administered by mouth appeared in the feces at this point, allowing for the average amount found in food under ordinary diet. With evidence of this nature there seems to be no tenable position, except the rather optimistic one that prevails among most physicians and the hypothesis that iron absorbed from inorganic compounds administered by the mouth is speedily eliminated again without really ever having been assimilated. It is hardly necessary to point out that the assimilation of iron means the formation of hemoglobin, since in no other form does iron appear to have any function in the body or to exist except as a matter of accident.

Dr. A. Hofmann, of Zurich, has reported in the *Archiv für Path. Anat. und Physiologie, und für Klinische Medicin*, March 9, 1898, a series of experiments in regard to the absorbability of iron both in human beings and in animals. In his review of the literature of the subject it appears that Quincke in 1868 experimentally demonstrated that animals fed with inorganic iron compounds absorbed them, at least from the duodenum, and under some circumstances from the stomach and jejunum. Before this, the same view had been upheld, but not conclusively demonstrated. It may be said that all experiments of this nature depend upon the precipitation of iron in the tissues and the demonstration of a staining, either macroscopically or microscopically. With the exception of Bunge, in 1885, the various observers are in close agreement that the principal depots for iron in the body are the liver and spleen, that its elimination occurs mainly from the large intestine, slightly from the kidneys, scarcely at all from the biliary passages or the small intestine. Why Bunge alone has been thought worthy of credence is a mystery.

In six human cases in which iron had not been administered medicinally, Hofmann made careful examinations of the alimentary canal, liver, spleen, and kidneys, using ammonium sulphide as a better reagent than potassium ferrocyanide, etc., whether for naked-eye demonstration or for microchemic preparations. He found that an abundance of iron could always be found in the spleen, as would be expected from the blood-elaborating function of this organ, and especially the breaking up of senile red cells in its pulp. It is scarcely necessary to remind the readers of this paper that hemoglobin will not react like inorganic compounds of iron and that incineration is necessary to reduce it artificially to the inorganic state. The liver always contained iron, but in varying quantity. Only occasionally, and then scantily, was iron found in the intestinal walls or the kidneys. In four other cases, iron, corresponding to about six centigrammes of the element daily, had been administered for some time and up to within a day or so of death. In this series iron was demonstrated in the duodenum in considerable quantities, in the large intestine in considerably less amount; otherwise the results were the same as in the preceding cases. Microscopically, about two-thirds of the villi of the duodenum contained iron, as shown under low powers, or macroscopically by a diffuse greenish tint; under high powers iron was shown to be present by the presence of small kernels in the epithelium and larger masses within the villi, the latter being borne mostly by round cells—lymphocytes—toward the submucosa. At first sight this would seem at variance with the classical analyses of lymph of the thoracic duct, as given by Gamgee and others. But it is evident that the analysts chose cases not under iron medication, and therefore subject to only minute traces of iron. It is supposable also that the iron may be diverted from lymph-channels into blood-vessels before reaching the thoracic duct.

For the individual in health all the various chemic needs of the organism depend for their satisfaction upon the natural appetite for organic foods, with only two exceptions (not counting oxygen), the appetite for water and that for sodium chloride, the latter being

apparent in many of the lower animals, as is evidenced by the salt licks of western streams and the eagerness with which domestic animals on a farm crowd about a salt dish. With these exceptions, the fulfilment of the chemic needs of the body is rather a matter of accident. To be sure, any marked deficit of fat, carbohydrate or proteid usually soon produces a corresponding craving, but unless we consider the appetite for meat as indicating a need of hemoglobin—which is contained in muscle as well as in blood—the supply of the other mineral ingredients of the body is not regulated by appetite, and in the natural state the body must select what it needs from a relative excess of all. Anemic human beings do not, as a rule, exhibit an appetite for foods rich in iron, although animals and men who have become anemic from starvation or from deprivation of iron-containing foods, and who are not otherwise abnormal, are said to have a predilection for meat, yolk of eggs, spinach, and other foods rich in iron. The promoters of certain therapeutic preparations of iron have even described an iron hunger for these preparations mixed with milk, etc., manifested by dogs which had been purposely fed on a diet poor in iron.

As a practical point in dietetics the writer has long emphasized the importance of maintaining a fair variety, even in cases of dyspepsia, because of the practical impossibility of calculating and supplying artificially the sixteen elements normal to the body by a restricted diet. Most writers on this subject, and all who are biased by commercial considerations, think they have solved the problem of dietetics if they administer the requisite amounts of fat, carbohydrate, and proteid. Even the pictures used to advertise the merits of artificial foods for infants usually show plainly enough a fat but pale and pudgy baby in marked contrast with the leaner but harder and rosier child that has been nursed and occasionally treated to a bone to suck. One of Hofmann's series of experiments on animals clearly shows the benefits of green foods so long advocated clinically. Taking every precaution to exclude extraneous sources of iron in the construction of the cages and to remove the feces so that these could not be eaten again by the animal, a contrast was made between animals fed on gruel and those fed on green food. The latter showed a marked superiority in iron.

In order to demonstrate beyond question that the coloration of iron in the colon indicated elimination and not reabsorption—the latter theory naturally asserting itself on account of the importance attached to rectal nutrition of late years—Hofmann tried two series of experiments, the first showing that the coloration of the colon persisted after iron administration had ceased for several days, the second that it was maintained during and after iron medication by hypodermic or intravenous injection. During these experiments the duodenum—the organ *par excellence* of iron absorption when this remedy is given by the mouth—remained nearly free from traces of iron.

It will have been noted that Hofmann's experiments are contradictory to two time-honored theories regarding the physiology of iron: that it is absorbed from the stomach as a chloride or chloralbuminate, and that iron salts, like other soluble drugs, pass immediately in the portal circulation to the liver. On the other hand, they confirm the theory that, in the spleen, senile red cells are broken down, and that the hemoglobin minus the iron is eliminated as biliary pigment, while most of the iron is reused. It is perfectly possible, however, that iron is absorbed directly from the acid stomach or even from the bowel by blood-vessels. Naturally, this method of absorption would not allow such delay of iron in the wall of the alimentary canal that it could be demonstrated by color reactions after autopsy.

The writer has delayed for some time an article on the therapy of iron, hoping that some such article as Hofmann's might appear to confirm the earlier scientific experiments on the subject and the conviction of many clinicians. It is obviously impossible in the practise of medicine to demonstrate conclusively in any particular case the reality of the benefit of tonic drugs. Such medicines act slowly; they produce no conspicuous phenomena such as may be observed from the administration of even therapeutic doses of alkaloids. Iron, in particular, is essentially a food, and is always to be found both in the body and in the contents of the alimentary canal. Hence the skeptic can be convinced only by methods which are at least relatively quantitative and distinctly local. Intestinal fistulæ are rare, and those of the duodenum almost unknown. Hence it is difficult to imagine an elucidation at all comparable to Hofmann's being made on the living subject.

As to the choice of preparations of iron, the writer has never been able to observe much

difference except such as might be attributed to some complicating circumstance. In subacid dyspepsia the liquor or tincture of the chloride is particularly beneficial because of the acid present in excess. The importance of having the tincture of sufficient age to contain compound ether has not been apparent to the writer, perhaps because he has been more interested in the stomach than in the kidney. At the same time it is only fair to state that with a moderate experience in chronic Bright's disease the special virtue of this preparation and of the Basham's mixture has never been conspicuous, and the writer cannot refrain from expressing the opinion that if iron is given without reference to a possible effect upon the kidney, and some such diuretic as potassium acetate or pure water or fruit juice is administered to get the precise effect needed so far as elimination is concerned, better results will be obtained than if the attempt is made to kill two birds with one stone.

Neither does it seem wise to administer astringent salts of iron for a local effect on the alimentary canal. Such are certainly contraindicated in gastric ulcer, while for the intestine there are far better and less irritating astringents, and the iron might better be given in as mild form as possible.

The so-called pyrophosphate, the vegetable salts, reduced or powdered iron, Blaud's mass and the newer preparations supposed to represent the virtues of hemoglobin have not given discriminating results in the writer's hands. All are quite unirritating; otherwise the choice depends mainly on whether a liquid or dry preparation is desired. If it is necessary or advisable to give an organic form of iron in anemia, there is little excuse for stopping short of hemoglobin itself. In most large cities it is possible to obtain fresh blood from animals declared to be free from disease by inspection. Not very rarely it is possible to find a patient who will take the trouble to drink fresh blood and who can readily overcome the antipathy to it. But hemoglobin exists also in muscle, though only in a seventh to a twentieth of the proportion in which it is found in blood. However, including the blood that is usually present in meat, a pound of lean beef contains about seven grammes of hemoglobin, corresponding to about three centigrammes of iron. Now if a patient is in such a condition that he cannot assimilate enough iron from the ordinary ration of meat, it is not likely that he will assimilate artificially prepared imitations of hemoglobin. But it is possible that inorganic forms of iron, being enormous in amount as compared with the iron that can be introduced in food and minute as compared with the bulk of foods that contain iron, and being also aseptic and slightly antiseptic, may still be absorbed and assimilated by the organism. Scientific experiments show that this result is perfectly possible. Even in the diseased human system clinical experience shows that it actually takes place, though not in every case in which it is desired.

As to the albuminates and peptonates of iron, it must be apparent that any mineral salt of iron given on a full stomach will form some such compound, while there is no preparation more palatable and more elegant than the albuminate formed by adding a ferric salt to egg-water or milk — omitting, of course, any allusion to the aromatics, sugar, etc., with which commercial products are usually combined.

It has been claimed that the treatment of anemia with iron is superficial and that the truly scientific treatment consists in administering a potassium compound, with or without iron, since in anemia the blood tends to become less alkaline than normal, and especially on account of the deficit of potassium. This claim is true, if the potassium dosage depends on an accurate estimation of the lack of potassium and of alkalinity in the blood. If, on the other hand, as is often the case, it means only that the physician gives Blaud's pill or some similar preparation as a matter of routine, what has been called science is nothing but a fad. Here again the writer would like to emphasize the need of giving green foods and to call attention to Bouchard's experiments in regard to "autointoxication," which show the danger of potassium in excess.

The key-note of successful iron therapy is to recognize that this drug is a food, and that if it is not absorbed and assimilated from an ordinary ration the trouble lies essentially with the body and, according to Hofmann, with the duodenum. This statement might seem inconsistent with others made in this article, and, indeed, it is only our relative ignorance that justifies the administration of iron as a drug at all. But we have plenty of precedent for such administration. Thus, when we cannot make the stomach secrete enough hydrochloric acid we administer the chemical; we even give bile instead of stimulating its formation in the

body. Unfortunately, we sometimes give it when there is already too much of the biliary constituents in the system. Caffeine is only a slight modification of xanthine, which is normally formed during the catabolism of nuclear tissue. If the body cannot assimilate fats we administer the nastiest oil that human ingenuity has devised, and even claim special virtues for it. Thus we are fully justified in administering iron as a medicine, but we must recognize the fact that as soon as we understand and can remedy the fundamental causes of iron deficit we shall sweep all the preparations of iron out of the Pharmacopœia. Whether we can actually reach this point in practice is by no means certain, but we must regard the anemic patient as having a special form of indigestion or of malassimilation in regard to iron.

There are two significant clinical facts which receive added significance from Hofmann's localization of iron absorption in the duodenum. First, it has long been known that whenever a patient lacked some special food, like fat, or iron, or carbohydrate, he was rather apt to be injured by forcing the administration of that substance. This is particularly the case in diabetes, and while persons who need fat are not usually seriously injured by the attempt to increase its absorption, the fact remains that the more a person needs fat the more obstinately does his system refuse to accept it. Secondly, anemic patients usually present some one of a number of conditions which may be considered as interfering with the function of iron absorption by the duodenum. Hyperchlorhydria sometimes exists, and we may assume as a hypothesis—it is nothing more—that the irritation of superacid chyme flowing over the duodenum inhibits its function. Subacidity would have a similar effect from allowing malfermentation or even putrefaction in the stomach. Ischochymia from any cause would have, ultimately, the same action. Catarrh about the bile-duct or a disturbance of biliary secretion would act locally on the very part of the duodenum which Hofmann has identified with the absorption of iron. Hitherto we have supposed that dyspepsia interfered with absorption of iron because the latter function belonged to the stomach, but this does not apply to anemia with hyperchlorhydria in the absence of hemorrhages. As to the liver, if Hofmann's conclusion is correct, we must have confused cause and effect, and we ought now to modify our conception by assuming, not that the liver is injured by iron carried to it from the stomach and intestine, but that the hepatic, or rather biliary, disturbance prevents the absorption of iron, possibly by what is largely a merely chemic precipitation by biliary acids. Of course, there is nothing in the newer theory to prevent a continuance in the belief that iron may exert an unfavorable local influence on the intestine. But if our premises be correct, we have an indication which the writer intends to carry into practise, of using iron hypodermically, when it is not well borne or is not efficient during administration by the mouth.

From the entire study of the subject it appears that we cannot hope, in the case of the kidney, to secure a local therapeutic effect from the use of iron, any more than we need fear such effect in the case of the liver.

It seems to the writer irrational to administer iron medicinally without carrying on routine blood examinations to determine whether the particular preparation is doing good in the individual case. On the whole, the simplest way to determine this point is by means of the hematokrit. Counting the red cells answers about the same purpose, but it is more tedious, and we are more interested in volume than in number. To be thoroughly logical, we ought to estimate the amount of hemoglobin, but there is, as yet, no clinical method which is reliable. Colorimetry is notoriously inexact and is being abandoned for approximation by specific gravity. But more careful studies of this method show that it contains many fallacies both of technique and of intrinsic nature. Men who object that the hematokrit does not apply to the point in question, but to the volume of cells only, will use an ordinary urinometer for taking specific gravity of a benzol chloroform solution, will neglect to make correction for variation of temperature, will overlook the fact that this mixture evaporates so rapidly and so unequally that it cannot be weighed in an ordinary accurate balance because the weight changes more quickly than the proper weights can be selected, will overlook also recent German studies which show that specific gravity is a function of several variables, including the number of red and of white cells. The writer hopes to obtain practical results from the direct estimation of iron in the blood without subjecting the patient to more than slight bleeding. But as yet this method is not on a clinical basis.

It has often been proposed to use substitutes for iron which are not normal constituents of the body. The chief drugs used in this way are manganese and arsenic. Most clinicians will agree with the writer that the former is practically worthless, and it is gratifying to note that microchemic investigation of the intestine fails to demonstrate that this drug has any influence on the absorption of iron, while there has never been a demonstration that it took the place of iron in the system. With arsenic, clinical results are very different. Indeed, one might perpetrate the aphorism that when iron is needed arsenic is indicated, and often iron is contraindicated. Yet arsenic is distinctly a poison and not capable of taking the place of any normal constituent of the body. The writer would explain the paradox as follows: The cases in which arsenic is of especial value are those of chlorosis and of somewhat similar nature, in which there is a failure of general innervation or supply of nerve power, and in which there is a deficiency of hydrochloric acid secretion, with corresponding increase of germ and yeast fermentation. Often the "enterohepatic circulation" (down through the bile passages and intestine and up through the mesenteric and portal veins) drags back with it ptomaines and other toxic substances from the bowel. Now arsenic seems to be directly a tonic to the central nervous system, though how we do not know, and it is an excellent antiseptic. The latter action is, undoubtedly, the principal reason why arsenic allows the body to avail itself of iron present in the food which would otherwise not be absorbed. Some may ask why, if the main action of arsenic is as an antiseptic, some other antiseptic may not act as well. The writer's answer is that several do act quite as well, except for the apparent nervine effect. Salol, salacetol, peppermint, wintergreen, or if there is diarrhea, a bismuth antiseptic like the salicylate, subgallate or eudoxine, even lavage or a diet which reduces fermentation, may act very much like arsenic. Indeed, it has seemed to the writer that the value of arsenic in skin affections, especially those like acne, urticaria, and some erythemata which are due to autointoxication from the gastroenteric tract, depends very largely on its action as a gastroenteric antiseptic. Arsenic should be given with considerable caution, for, unlike iron, it is eliminated to a considerable degree by the kidneys, where its local effect is dangerous. It happened during the writer's service as interne that a patient developed albuminuria while in the hospital, and the case progressed to a fatal termination from nephritis. As the urine had been several times examined and found normal, careful search was made for a cause. It was then discovered that the patient had been taking arsenic for some weeks, without the knowledge of the attendants. Both visiting physician and interne had been changed within a short time, and through a failure to make proper memoranda arsenic had been continued unduly.

THE MEDICAL TREATMENT OF APPENDICITIS.

By Herman B. Allyn, M.D.,
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The purpose of the present paper is not to discuss the various remedies and measures which have been recommended for the medical treatment of appendicitis, but to describe, as briefly as clearness will permit, a plan of treatment which I have followed with very satisfactory results for the past three years. This plan consists essentially in absolute rest in bed; in abstinence from food for twenty-four to forty-eight hours; in opening the bowels, preferably by a saline laxative, and in keeping them open to the extent of one or two movements in twenty-four hours.

In common with the great majority of physicians who have been graduated in the last fifteen years, I was taught to use opium in appendicitis, and to use it for its twofold action in lessening peristalsis of the intestine and in controlling pain. I treated cases of appendicitis in that way for a number of years, and have spent many anxious hours in watching over cases, fearful lest they might die, and considering the propriety of a surgical operation. Since opium has been discarded and laxatives employed, the cases have caused me far less anxiety, because there has been less pain, less fever, less tympany and vomiting, and less toxemia as a whole. Moreover, the duration of the illness has been, on the average, shorter.

During the past three years I have had fifteen cases of appendicitis in private practice; all have recovered without operation while under my care. I do not include in this list one case of combined salpingitis and appendicitis, in which disease of the appendix was probably the cause of the disease of the tube, because the disease of the appendix

was discovered only at the abdominal section. The patient made a complete recovery. Nor is any case of doubtful diagnosis, or one remaining still under treatment, included. One case in which an operation was performed after I ceased to be the attending physician is, however, included.

The plan of treatment adopted in these cases was very simple. The patient was put to bed and kept as nearly at absolute rest as the circumstances of the patient and domestic conditions permitted. All food was withheld for twenty-four to forty-eight hours, and water, or some carbonated water, or hot water, allowed very sparingly. By the mouth some laxative was given, preferably a saturated solution of Epsom salt in peppermint water. This is given in teaspoonful doses once in three hours, until one or two movements in twenty-four hours are obtained. In a few instances half an ounce or an ounce of castor oil was given for a single dose, at the beginning of an attack. When the stomach was too irritable to retain the Epsom salt, calomel in divided doses was ordered until the bowels moved once or twice. Occasionally citrate of magnesia is preferable. Neither opium nor morphine hypodermically was given for the pain. In nearly every instance pain subsided when once the bowels had been freely moved, and food had been abstained from. In rare instances codeine was given after the bowels had been moved; but while I am sure that its effects are less depressing and objectionable than those of morphine, I am not so sure that the patient was the better for it. Nevertheless, if an anodyne is to be given in this disease, it should be given after the bowels have been opened. Food was returned to cautiously, a tablespoonful of milk and lime-water once in two or three hours, or what is preferable, a small quantity of beef juice or one of the animal broths, being allowed.

The same methods which have been found useful in the treatment of acute intestinal toxemia in infants are useful in the treatment of many of the cases of appendicitis. This is especially true of the period after the acute symptoms have subsided, and the patient is to be protected by a carefully regulated diet against a recurrence. Pain usually ceases to be a symptom demanding treatment when the bowels are moved once or twice a day; but until that time local measures to relieve pain are very useful. Such agents are turpentine stupes, the hot-water bag covered with a wet piece of flannel, ice, and leeches.

I am well aware that the great weight of medical authority is in favor of the use of opium and against the use of salines in the treatment of appendicitis; though the opium treatment has ceased to be the almost universal practice it was a few years ago. We owe this change of view very largely to the influence of surgeons, who have objected to the use of opium in appendicitis because it masks the symptoms of the disease and may thus deceive them. A more important objection still is that opium aggravates any toxemia that may exist, thus increasing tympany, vomiting, and fever.

The great objection to the use of laxatives in appendicitis has been the fear lest the peristalsis which they cause may occasion perforation of the inflamed appendix, or exchange a local for a general peritonitis. I cannot say there is no danger of this, but I believe that the danger is exaggerated. On the other hand, in considering too exclusively the possibility of perforation of the appendix physicians have failed to appreciate the bearing of certain obvious facts. In the first place, appendicitis in most instances is not primary, but results from, or is a part of, catarrh of the colon, or fecal accumulation therein; and that an overdistended appendix with occlusion of its mouth will empty itself most readily if the colon is itself empty or nearly empty. Again, the nausea, vomiting, tympany, chills and fever are not, in the great majority of instances, the result of local or general inflammation, but are toxic symptoms, the result of absorption into the general circulation of certain poisons produced at the seat of inflammation or in the neighboring intestine. I believe it is by lessening the general toxemia through elimination of the toxins that laxatives do good in appendicitis. But whatever the explanation may be, in cases treated with laxatives and without opium I have seen less nausea, vomiting, tympany, and fever, and the cases appear to run a shorter course.

Purgation is not necessary. If the bowels are constipated when the patient is first seen, an enema should be given, and then some laxative, preferably Epsom salt, given by the mouth until the bowels are freely moved. Thereafter only sufficient should be administered to secure one or two movements daily.

In speaking of the medical treatment of appendicitis, I do not, of course, mean to imply that the services of a surgeon are not needed. On the contrary many cases are

surgical from the very beginning. My own rule has been to call a surgeon in all doubtful cases. A case in my judgment is doubtful if within twenty-four hours after the patient is seen, or after the bowels have been sufficiently moved, there has not been a decided improvement in respect of pain, vomiting, and fever. In such a case perforation may exist.

But even the most enthusiastic advocates of operation decline to operate in certain cases. I very well remember on one occasion calling a surgeon in consultation over a case of appendicitis. There was extensive tympany, but only slight fever and a pulse under 100. The aspect of the patient was, however, bad, and the surgeon declined to operate then, believing that if the abdomen were opened the patient would go into collapse and die on the table. He advised the use of Epsom salt until the bowels were freely moved. This suggestion was carried out, and in twelve hours the patient was so much better that it was decided to wait still longer before operation. To make the story short, the patient fully recovered, and then declined operation, until another attack made him again change his mind. It may appear to others as it seemed to me, that if the moderate use of salines will rescue a patient who is deemed so far gone by a surgeon that he would not survive an operation, it should also be a good treatment for milder cases in which the question of operation is never urgent.

AN OPERATION FOR THE CORRECTION OF BADLY UNITED FRACTURE.

By Gwilym G. Davis, M.D.,
Philadelphia.

The patient, a boy aged thirteen years, was referred to me by Dr. Eckman for treatment. Several years ago his left leg had been broken above the ankle and had united at a marked angle. By a recent fall this angle of union had been fractured, and as this necessarily entailed the patient remaining off his feet, it was thought that the opportunity might well be utilized in straightening the limb. It had been broken at the age of eight years by a fall on the sidewalk. He was then treated at one of our prominent hospitals, first with a fracture box and later with plaster of Paris. On removal of the plaster cast the deformity was apparent. He then again entered the hospital, and the leg was rebroken and redressed. After the removal of the dressings for the second time the leg again became deformed.

For the next three years the patient walked about on crutches, when he entered another hospital. The leg was here operated on twice, but the deformity recurred. For the past year and a half he has been walking with crutches, but recently while using a cane he fell and fractured the angle of union.

On examining the limb the deformity was seen to be marked. The seat of the original fracture was at the junction of the lower and middle thirds of the leg. Fig. 1 shows a side view. It is here seen that the two fragments have become united at an angle of forty-five degrees. Viewed from the front the deformity is seen to be just as bad in a lateral direction as in the anteroposterior one (see Fig. 2). The part below the seat of fracture points inward to the extent of forty-five degrees from the straight line of the leg.

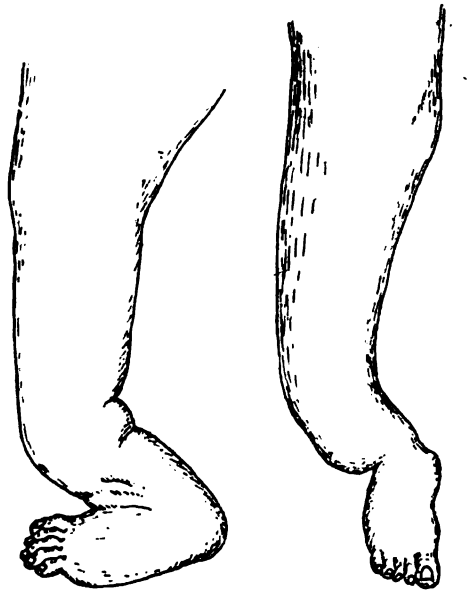

Fig. 1. Fig. 2.

To remedy the trouble the following procedure was undertaken: An incision was made on the anterior surface of the leg directly over the apex of the deformity. The bone having been exposed, the soft parts were pushed back and a wedge-shaped piece of bone was removed from the tibia. Sufficient was taken out to allow of a slight overcorrection. The divided ends of the tibia were then joined by two sutures of very thick silver wire, the ends coming through

the wound. A short incision was next made on the outside of the leg, over the fibula; this bone was likewise resected and wired with thick silver wire. Owing to the lower fragment of the fibula being fastened in its changed position, it was found impossible to bring it entirely in line with the rest of the bone. Healing took place kindly, the foot and leg being retained in the meantime in a plain tin right-angled splint. The wire sutures were left in about eight weeks and then removed.

It was found that union of the divided bone had not occurred at the site of resection. To hasten its accomplishment and prevent the reproduction of the deformity, the brace shown in Fig. 3 was applied. It

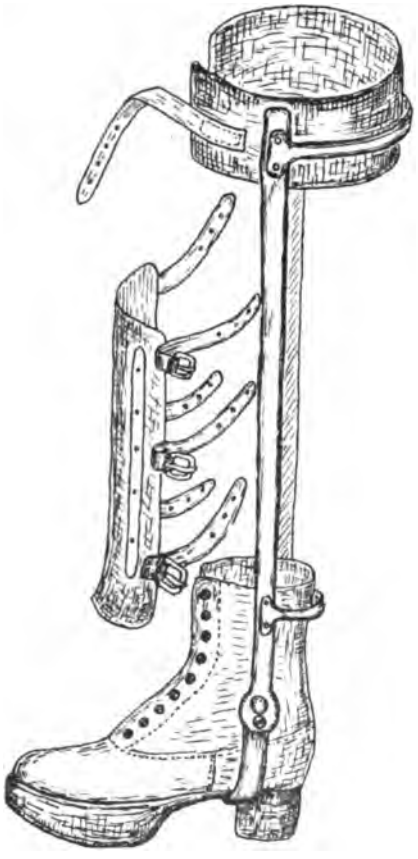

FIG. 3.

consists of two side irons fastened to a steel sole plate in a high shoe, and a sole-leather plate for the front of the leg. The ankle-joints of the apparatus were locked by means of a screw placed just below the joint bolt. A piece of sole-leather, strengthened by a couple of strips of steel, was fitted to the front of the leg and fastened by straps to the side irons. This reached from the instep to well up the leg and prevented the leg again bending forward at the site of injury. The ultimate result is shown in Fig. 4.

The interest in cases such as this lies in investigating the causes of the previous failures in treatment and then devising means to avoid them and bring the treatment of the case to a successful end.

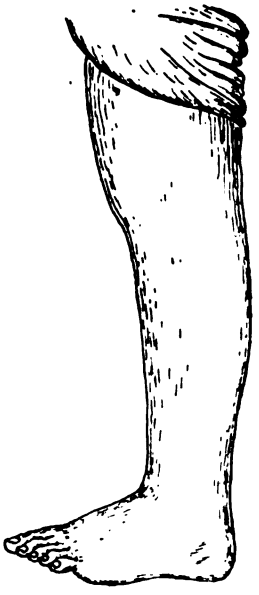

FIG. 4.

The deformity here shown is that which, though in a less degree, most commonly follows fracture of the leg. The heel is drawn up by the tendo Achillis; the foot drops backward, and consequently the anterior extremity of the upper fragment protrudes.

The probable cause of failure of the previous efforts at correction was that the ends of the bone were not brought properly together and kept there until firm union had occurred. Fractures in this location are usually oblique in character, the line running upward, inward, and backward. Many show a tendency for the lower end of the upper fragment to project forward. This is to be met by applying Buck's adhesive plaster extension to the lower fragment, the leg resting in a fracture box. Three pounds so applied is sufficient. It may be supplemented by division of the tendo Achillis, or a small shot- or sand-bag may be laid over the projecting end of the upper fragment.

The bad results often seen from fractures in this region convince me that the profession generally does not appreciate their importance, or else is unable to apply an efficacious dressing. No pressure should be placed on the leg for six, eight or even more weeks

after the accident. The pressure of the weight of the body causes the recently formed callus to yield, and the line of fracture being oblique the fragments begin to slide over one another, and deformity that at first was hardly perceptible becomes, as in this case, very marked. It is to avoid this tendency to overlapping that the ends of the bone in operating are cut square across. Bony union is desired and aimed at, but it may not occur. In this patient it did not occur directly after any of the operations.

It is not necessary to keep the patient abed while waiting for bony union, but it is positively necessary to keep the leg from bending forward at the site of the operation and thereby reproducing the deformity. In this case the greatest efforts were directed to this end. At the time of operation it was found impossible to so extend the foot at the ankle-joint as to make it stand at right angles to the leg. If an attempt had been made to bandage the foot firmly to the foot-piece of the splint it would only have tended to tilt the lower fragment forward and reproduce the original deformity. Therefore, while the foot was left to a considerable extent loose in the splint, the greatest care was taken to keep the tibia absolutely straight. Even after the wires had been removed union was not firm, although the leg was straight. The brace here used was fastened to a high shoe. The various operations which the patient had undergone had shortened the leg. The ankle-joints were made immovable because it was desired to prevent the foot from flexing on the leg, as seen in Fig. 1. The tendency of the leg to bend forward at the seat of fracture was counteracted by placing a thick pad of gauze over the seat of the wound and anterior part of the leg, and then firmly strapping the leather splint on the front, the leather straps being passed around the two side irons. The use of some such apparatus is absolutely essential to the successful treatment of many of these cases.

True bony union was not complete in this case until nearly a year after the time of operation. The eventual result achieved is shown in Fig. 4, taken nearly two years after the operation.

Much depends on the thoroughness with which the bones are joined together. Catgut is entirely too insecure, and my preference is for an annealed silver wire one-sixteenth inch thick. After using the brace for a while the screws locking the ankle-joints are removed and bending of the ankle allowed.

*ERRORS IN THERAPEUTICS.**

By H. A. Hare, M.D.,
Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

When casting about for some topic which would be interesting and worthy of presentation to your Society, I have come to the decision that I will serve you best if, instead of discussing a single theme during the time given me, I take up several topics which are of more or less interest to every one of us, be his practice what it may; for we are met together in order that by comparing views we may gain information which will prove of value in our daily rounds. Often it is as well to take a view of what has been done as to attempt to find our way into new fields in which the paths have not been well enough trodden to be safely followed.

With your permission, then, I shall ask your attention first to a consideration of the value of the iodide of potassium or sodium in the management of cases of chronic renal disease. Aside from the mere empirical use of an iodine compound we must discover whether its employment can be based on rational grounds, then determine how it may do good, and finally consider whether conditions may exist in which it can do harm.

It is manifest at the start that we must separate the parenchymatous nephritis from the interstitial type, for the two states are pathologically and symptomatically widely at variance.

Taking the interstitial variety first, we find that there are three indications to be met in the care of patients suffering from this disease, namely, to diminish the call upon the excretory power of the kidney, to lower arterial pressure and thus relieve strain upon the heart, and finally to treat complicating states which cause the patient to be in danger or distress. It is evident that the iodides do not decrease but rather increase the excretory work of the kidneys, and this being the case, is there any reason to suppose that the iodides can be of any value so far as any direct influence upon the renal lesion is concerned? An examination of the lesions found will, I think, bring forth a negative reply from the most enthusiastic therapeutist. Whether we believe in the old theory that the increased growth of the connective tissue causes pressure on the parenchyma

* Part of the Address in Medicine before the eightieth anniversary of Cumberland County Medical Society of New Jersey, December, 1898.

with resulting wasting of this part of the kidney, or whether we adhere to the newer pathological view, which is probably correct, that the overgrowth of connective tissue is a secondary process, long experience tells us that connective tissue already formed, particularly if its formation has been gradual and definite, is not capable of absorption or material modification by any treatment we can institute; and the older the patient the more certain is this view. As interstitial nephritis is a disease of advanced life regenerative changes are impossible. So far, then, as a causative agent, in the sense that existing damage can be repaired, we can cast the iodides aside. To quote from Furbringer's essay, we know of no specific drug capable of arresting the process of contraction. He agrees with Cantani that the iodides are without effect unless the nephritis is syphilitic in character, and that their use simply tends to produce dyspepsia and headache.

When we turn to the side of preventive medicine the aspect of the case is quite different, for while chronic interstitial nephritis is an insidious malady, it is after all but a manifestation of a number of conditions associated with general or local conditions of perverted nutrition and metabolism, and the iodide by exercising an influence upon cell growth which we call alterative so modifies the abnormal state that the exciting cause of renal change is put aside or held in abeyance. We find, therefore, that the iodine compounds can only be expected to help the patient when it is clear that by their use we can remove the cause of the renal change. Under what circumstances can this result be expected? To take up the least frequent cause, we find that in that form due to lead the iodides so aid in the elimination of the poison from the body that they exercise a very powerful effect for good aside from any alterative function. So, too, in syphilis the direct influence of the drug upon the course of the disease renders it of great value to prevent further evil changes. In the chronic renal and vascular changes due to lithemia and gout they are also of value, since they are known to modify the severity of these dyscrasias; but in a very much larger class of patients these causes are not active, and the cirrhotic process seems to be a degenerative change due to old age, which may be reached at an unusually early period of life. Of how much value are the iodides in this class in which we know not what is the real proximate cause, and to which we cannot direct the use of the iodide with any clear idea of its possible action? I believe very little good can come directly from its employment, for I do not know of any researches that show the iodide to exercise an inhibitory influence on a cirrhotic process produced, unless it is produced by a cause relieved by the iodide. What, then, shall we decide as to the use of the iodides in renal cirrhosis? The answer would seem to be that they should be employed because of their specific power in some cases, as those due to lead, syphilis, and gout, and on general principles in those cases in which these factors are not manifest either because they are obscure or because by their influence they lower arterial pressure and so relieve the heart of the burden of working against a great *vis a poute*, causing a simultaneous decrease in the symptoms of headache, dizziness, or vertigo.

Having found that there are good reasons for the use of the iodides, are there any reasons which will make it unwise to employ them in interstitial nephritis? The reply to this question depends to a great extent upon the dose which is employed and preparation used, because if very large doses of the potassium salt are given we get a powerful influence along with the effect of the iodine. It is not generally recognized that potassium is a powerful depressant poison which is largely eliminated by the kidneys, and which is therefore retained in the body in a malady like that we are discussing owing to the impaired function of the kidney. In many of these cases marked degenerative changes are present in the heart muscle, and the potassium still further depresses this feeble viscus. The use of the iodide of potassium should therefore be cautious and in small dose in interstitial nephritis, and the same rule applies in less degree to the iodide of sodium and strontium. What remedy of a distinctly alterative type may then be more freely used? The reply to this is that the protiodide of mercury and the bichloride are more useful and less dangerous, since they do not exercise a general depressant influence over the heart muscle or the body protoplasm in general, nor do they load the body with a large amount of inorganic material which must be eliminated.

Finally, let me reiterate the fact that the iodides when used in cirrhotic states due to syphilis only act as prophylactics against the further progress of the malady and in no way clear up the results already produced.

In regard to chronic parenchymatous neph-

ritis it is, I think, a fairly well decided point in medicine that the iodides are not only valueless but harmful. The renal lesion is not one in which the action of one alterative can be of much service; the glandular apparatus is so diseased that the iodine and potassium are not eliminated, and the former drug may produce renal irritation in the still active secreting portions of the kidney and so speedily produce fatal conditions. In reply to a question as to the wisdom of using the iodide, Dr. Tyson replied to me that he thought it necessary to use great caution in cases of the parenchymatous form, in which a hypersensitiveness to this drug often exists. In other words, the underlying causes of chronic parenchymatous nephritis and the pathological process itself are such that the action of an iodine compound cannot be advantageous.

There are two other remedies which are abused in renal disease, namely, iron and opium, which have become popular probably because we have recognized that we are face to face with an incurable disease and grasp at straws in the hope of saving the drowning man. On the other hand, we know that in many cases by proper treatment we can so modify the course of the malady and control its symptoms that life may be greatly prolonged. Here again we must separate the two general types of kidney disease if we are to obtain clear ideas of the effects of iron.

In interstitial nephritis there is no reason why this drug should be given except in rare instances, for it has no direct renal influence, and whatever advantage follows its use is to combat anemia, a condition not well developed in most cases of interstitial disease. Further, it increases the headache, so often a pronounced symptom of high arterial pressure, disorders the digestion, and accumulating in the body acts as a burden upon the tissues. It should not be used unless there is a distinct reason for its employment.

Even in the parenchymatous form of renal disease its use is far more limited than is generally understood, for here again it cannot influence the pathological process in the kidney. In other words, as a result of the toxic matters which accumulate in the blood in this malady degenerative changes take place in it and anemia develops, and this anemia may be well combated with iron; but beyond the relief which it may render in part to the anemia, there is no evidence that it exercises any effect of value on the kidney itself. Further, there are cases of parenchymatous nephritis in which anemia of any degree is not present and yet in which iron is prescribed. In other words, by a curious process of transition the profession has mentally transferred the value of iron from the effect to the cause, or in other words used a remedy for a symptom as a remedy for a disease. Not only is this a scientific mistake, but it is a practical blunder, since iron is often deleterious in its effects in these patients. As we all know, it tends to cause constipation, a condition the reverse of that desired in a body which needs active bowel movement to aid in the elimination of poisons. If constipation exists fluids which should be passed out by the body go to aid in the production of dropsical effusions. Again, iron often causes headache of a congestive type or other signs of cerebral congestion, and this state is also the antithesis of that desired in renal disease. Finally, it tends to produce a disordered digestion, and is only needed in the body in minute quantities, there being but thirty-two grains of iron in the entire body, whereas as much as this is often prescribed in a few days.

The subject has been well discussed by Dr. Tyson in one of his recent papers, and he has done a service in directing attention to a subject in which the profession have been guilty of rank empiricism. I may well be asked why it is that this drug has attained such a wide-spread use in practise if so little can be said in its favor, and why it is that some of my audience have seen benefit credited to the iron. This is proved by the fact that iron is nearly always given in the form of the liquor ferri et ammonii acetatis, and it is the acetate of ammonium rather than the iron which produces the diuretic influence which we seek in this disease when the urine is scanty. There may be cases needing iron. If so, why not give it, to use a pharmacopœial phrase, in a more elegant and agreeable form instead of this bulky liquid, and if a diuretic is needed why not employ some diuretic which is more certain and active? Among French clinicians the sugar of milk in drachm doses is used, and while others give caffeine or its cousin theobromine, some give digitalis. For many years irregular and regular practitioners have used another drug which has not attained the reputation in this part of the United States that it deserves, namely, *Apocynum cannabinum*, or as Rush called it, the "vegetable trocar." One reason for this has been the fact that confusion as to the real Apocynum

has existed even among pharmacists, and *Apocynum androsæmifolium* has often been dispensed with no results or only harmful ones. There is no doubt that in the scanty urinary flow of this form of renal disease with dropsy this drug, in the dose of five drops of the fluid extract three times a day, gives very extraordinary results in relieving dropsical effusions.

There is another drug which is constantly given in nephritis without clear ideas as to its exact effects, namely, opium. Its use in ordinary forms of renal disease without cerebral or nervous symptoms is certainly not necessary and leads again to the retention in the body of effete materials which should be eliminated. When we come to consider its use in convulsive uremia we find contradictory evidence concerning it, some asserting that it is a very useful drug and others that it is worse than useless. One of the strongest upholders of its value in uremic convulsions was Loomis, but he was careful to limit its use to the uremia of acute nephritis and did not commend its employment in the uremia of chronic nephritis. This is a fact not generally known. One can understand that a drug might act well as a nervous sedative in a condition in which a poison had produced acute nervous excitement, and fail to so act in a state in which nervous excitement was only a result of prolonged intoxication. In the latter cases opium would seem to be a dangerous drug. It must be evident to those who have seen different cases of uremia that the symptoms arise from different poisons. Sometimes these poisons cause stupor without spasm, in other instances they produce violent convulsions because the cerebral cells are primarily diseased, or because the poison in one case is irritating and in another sedative, and therefore opium might be useful in one case and harmful in another. These facts have been well dealt with in the paper by Tyson which I have quoted. Speaking of interstitial nephritis, he says: "I regard the use of morphine in such cases as harmful in the extreme, and its hypodermic injection should be positively forbidden. It causes a decreased urinary flow, suppression, coma, and death. This is particularly true of old persons."

Not long since I asked the following question of several well known practitioners: Have you found that the existence of chronic parenchymatous or chronic interstitial nephritis renders it necessary to use caution in the use of opiates? To this question Dr. Tyson answered, "Yes, especially chronic interstitial nephritis." Dr. Da Costa says, "Yes, I share the common opinion that it necessitates caution;" and Dr. Musser, "Yes, particularly if there is an associated pulmonary complication, as congestion, pneumonia, or bronchitis, and very necessary if the tendency of intercurrent process is to lead to dilatation of the heart and secondary renal congestion." Further, Wood tells us that his own belief is that whenever the kidneys are seriously diseased the physician should be exceedingly careful in the administration of opiates, because the chief channel through which these are eliminated is choked up. Still more recently, however, Ringer has urged the use of morphine in uremic spasm.

Here again I fail to see any possible benefit to be derived from opium that cannot be obtained by the use of other drugs more directly anticonvulsive and less stuporous in their effects, such for example as chloral and the bromides, and for the convulsion itself either by the mouth in full dose, or by inhalation, or hypodermically, since it will act as a venous sedative and is said to have a peculiarly beneficial effect in uremia. Nor should the great value of injecting normal saline solution into the veins or the subcutaneous tissues be forgotten. Of this I have already written in several addresses.

Finally, a word as to pilocarpine in uremia. Originally heralded as a remedy for uremia, it has at last fallen into deserved disuse, for while it sweats the patient it lowers circulatory integrity and so indirectly aids in producing that most to be dreaded complication, pulmonary edema. Further, it also tends to fill the bronchial tubes and all the air-passages with liquid secretion, and so hastens the increasing dyspnea and cyanosis. I believe that pilocarpine is contraindicated in uremia as a rule, and absolutely harmful in any case in which the heart is impaired or the lungs not normal; and what cases of uremia are lacking in these two objections? In eclampsia, which is after all a form of uremia, obstetricians seem as a unit against its use.

Perhaps the thought has entered your minds before this that this is a curious occasion, in that a professor of therapeutics in a great school is hurling denunciation at well recognized therapeutic practices and posing as a therapeutic nihilist; but this he is not doing. A good hunter is one who knows when and where to shoot, and a careful physician knows when to use certain remedies and when to avoid them.

The Therapeutic Gazette

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Leading Articles.

THE PERVERTED INTENT OF PATENT LAW.

The American people are wont to consider that in practically every respect they are in advance of their more unfortunate brethren who are thought to suffer from a monarchical or paternal form of government, and they believe that by legislating for themselves they obtain the best results. In some respects, however, they fail to receive certain benefits which accrue to those who are subjected to more paternal laws, and in no instance is this more noteworthy than in the case of drugs which are made under patents and which are sold in this country at prices far in excess of their real worth. The October number of the *Bulletin of Pharmacy* contained an interesting editorial dealing with this important matter. Few physicians and none of the laity are aware of the fact that phenacetine sells in Canada at 25 cents per ounce, but for $1 in the United States; that sulphonal sells in Canada for 20 cents and for $1.35 in the United States; and that trional sells in Canada for 90 cents and at $1.50 in the United States. These are but a few of a large number of synthetic chemicals which are sold throughout the length and breadth of the land at similar rates. The question at once arises, why is it that such enormous prices, far above any justification, can be imposed upon the American people? and the reply is that we have such patent laws as are not permitted to exist in Germany, France, England, and Canada. In those countries the law is such that no exclusive monopoly in a remedial substance is possible, and in Germany in particular it is not possible to patent a food or a medicine, but only the process by which it is manufactured, the result being that others can frequently prepare these substances by other processes, and thereby two results are obtained: first, extortion is avoided, and second, chemical investigation is stimulated. In the United States, on the other hand, we grant (*a*) a patent on the process, (*b*) on the substance itself—that is to say, on its chemical composition—and (*c*) we allow the name to be registered, thereby rendering the name the exclusive property of the manufacturer for all time, even though his patent may expire. So strict is the American law that the same product may not be manufactured by a different process even though offered for sale under a different name.

Action has recently been taken by the American Pharmaceutical Association looking towards the revision of the law dealing with these products, and the President of the United States has recently appointed a commission composed of the assistant commissioner of patents at Washington, Mr. Arthur Greely, Judge Peter Grosscup of Chicago, and Mr. Francis Forbes of New York City. We would suggest to our readers that through their representatives in Congress or by direct communication they impress upon the Commission the necessity of revising patent legislation. It is a monstrous wrong that substances capable of so much good can only be obtained at such outrageous prices, far in excess of the reward due to their inventors or manufacturers. Such profits should be prevented by laws as strict as those which forbid rates of usurious interest.

THE ERUPTIONS PRODUCED BY CHLORAL.

In addition to the nausea, vomiting and purging produced by chloral in some patients through its irritative action upon the stom-

ach, and in addition to the coryza which it occasionally produces, chloral is capable of causing other effects, aside from any depressant influence which it may exercise upon the circulatory and respiratory systems. Within the last two years we have called attention in these pages to the frequency with which drugs produce lesions in the skin, the cause of which is frequently not recognized, and these lesions are therefore very obstinate under ordinary treatment until by chance the use of the drug which is causing them is stopped. In this connection we may call attention to an interesting paper which has recently been published by Labadie-Lagrave, of Paris. In the first of his cases a girl of seventeen without any antecedents of note was seized with fever, sore throat, and an eruption upon the arms of a diffuse red character, with tiny punctated marks. The diagnosis was that the patient was suffering from scarlet fever, and the condition of the tongue was thought to be characteristic of this disease. The tonsils were covered by a gray, gangrenous-looking exudate. There was no albuminuria in the urine and the lungs were clear. The diagnosis was that of ordinary scarlet fever with gangrenous tonsillitis. The temperature curve was of ordinary scarlet fever. Two days after the patient was seen the eruption faded and the temperature fell by lysis. Frequent applications of antiseptics were made to the buccal mucous membrane of a lotion of salol and camphor, and to the skin chloralized vaselin was applied. After this treatment had been continued for a considerable period of time, desquamation of the skin having been persistent, although it was limited by the use of the chloralized vaselin, the temperature suddenly rose several degrees, and at the same time a curious rose rash developed upon the upper and anterior portions of the thorax and in the dorsolumbar region. This eruption was accompanied by a disagreeable sensation in the skin, and finally was followed by little papules which were surrounded by a red areola. Labadie-Lagrave believes that this secondary eruption was due to the chloral applications. In a second case in which chloral was applied locally similar symptoms were developed, namely, an erythematous rash, characterized afterwards by a papular eruption.

It is true that in these instances the eruption occurred from the local application of the chloral rather than by its internal use, but that eruptions do occur when chloral is used either internally or externally is well known. They have been reported by Schüle, Fuller, Brown, Mayer, Martinette, and Curran, and in America by Dr. Morrow in his well known book on "Drug Eruptions." Chapon in a Paris thesis of 1894 described such a condition.

Mason recorded three cases of measley eruption which lasted three or four days, and Burham has noted scarlatiniform eruptions after the use of chloral. In Brown's cases curious red patches appeared over the malar bones, and across the bridge of the nose. Mercier has seen an urticarial rash, and if a large amount of literature were to be searched it would be found that chloral has been shown to produce almost every variety of lesion of the skin which is not dependent upon an infection and a microorganism.

Two theories have been advanced to explain these eruptions. One is that the drug produces an angioneurosis or vasoparalysis, probably by an action on the vasomotor centers. The other theory is that some of the chloral is eliminated by the glands of the skin, and in its elimination produces local irritation. According to Aviragnet these eruptions may be divided into two great classes. In the first they appear in the presence of conditions of the nervous system characterized by exaggerated excitability, as for example, chorea, insanity, tetanus, general paralysis, also in transverse myelitis and after operative shock. In the second class of cases they occur in instances in which there is retention of chloral in the system, as for example, in acute and chronic enteritis, eclampsia, hepatic disease, advanced tuberculosis, and abdominal tumors. Then, too, it is well known that the simultaneous administration of alcohol with chloral often causes dermal manifestations, and hot drinks given with chloral, particularly if they are copious, are apt to produce such effects. Of course, in the cases where chloral is applied externally it produces a direct local irritant influence.

THE NEW TREATMENT OF HEMORRHAGE.

There are certain hemorrhages which, even though they are profuse, can be readily controlled because they occur in places where mechanical means can be employed for their arrest; but there are other hemorrhages which spring from vessels so deeply situated that

compression and ligature do not suffice to control them, and in their presence the physician only too frequently finds himself unable to do much for his patient. In this connection the papers which have been recently published in French literature concerning the value of gelatin and calcium chloride or gelatin and sodium chloride for the purpose of causing coagulation of the blood are of interest, and some of them have been accorded space in our Progress columns. One of the most recent of these papers dealing with the indications and contraindications to hemostasis caused by the action of gelatin is that of Paul Carnot in *La Presse Médicale* of November 16, 1898. After calling attention to the fact that he made his first communication concerning this subject in 1896, he goes on to mention the hypodermic injection of sterilized gelatin solutions for the purpose of increasing coagulability of the blood in general. He then points out that the local use of these solutions is exceedingly valuable in controlling capillary or oozing hemorrhage where compresses fail to produce the results desired, and that this substance often suffices when preparations of the iron and the acids fail. It is, of course, absolutely essential that the solution when it is injected shall be absolutely aseptic. Very commonly the gelatin has been dissolved in ordinary sea-water which has been filtered and sterilized. In other instances it is, as we have already indicated, dissolved in ordinary water to which calcium chloride has been added, calcium chloride having great power, as first pointed out by Wright, of Netley, England, in increasing the coagulability of the blood. The solution that Carnot has employed among others is one composed of gelatin 12 drachms, chloride of calcium 2½ drachms, and water 1 quart. Queyat has modified this to the extent of adding a small quantity of glycerin to the solution. Any advantages this glycerin may have as a solvent are, we think, more than counterbalanced by its physiological action, which ought really to contraindicate its introduction into a mixture designed for subcutaneous injection.

As the solubility of the gelatin is a good deal increased by the application of heat, and as heat also aids in making it fluid, it is well to sterilize it immediately before it is to be used, and then to employ it before it becomes thickened by cooling, care being taken of course that it is not used so warm as to cause damage. It is claimed that when one to two ounces of this solution is given under the skin into the loose subcutaneous tissues of the back or thighs it acts very speedily in causing coagulation at the bleeding point. When gelatin solutions are applied to exposed bleeding surfaces, care should be taken to protect these areas lest putrefactive changes take place in the gelatin after it is applied, and if the gelatin solutions are used in the nasal cavities to stop hemorrhage, such precautions must be carried out. Carnot then goes on to point out that there is some danger of producing hypercoagulability of the blood if the gelatin solutions are used too freely, and this possibility is to be considered as an argument against its too free employment. Indeed, Carnot believes that the free injection of both the gelatin and calcium chloride in the presence of pressing hemorrhage may, though it controls the hemorrhage, ultimately exert a deleterious influence upon the blood in general. In his opinion, therefore, the subcutaneous use of this mixture has certain disadvantages and ought not to be commonly resorted to. He thinks that the gelatin solutions are of the greatest benefit when applied locally, and that when it is necessary to give a hemostatic hypodermically calcium chloride itself should be employed, as under these circumstances it is effective in aiding in the coagulation of the blood, but is not capable of causing hypercoagulability since, as is well known, calcium chloride when given beyond a certain point ceases to increase the coagulability of the blood and rather tends to exercise an opposite influence.

In this connection Deguy tells us in the *Journal des Praticiens* of November 12, 1898, that the subcutaneous injection of gelatin solutions is capable of producing the following disagreeable symptoms: A condition of fever may develop, ranging from 2° to 3° above normal, and this may last for a day or two. It is apt to be present in the evening and not in the morning, and sometimes is accompanied by chills and insomnia. The local accidents which follow its injection may be divided into three parts: Pain, due to the injection, of a burning character which is increased by pressure; second, a diffuse redness of the skin or pseudoinflammatory process, violaceous in appearance, which disappears for a moment on pressure and then immediately returns; third, a diffuse induration of the tissues, having very much the same sensation as the induration due to anthrax. Usually this lasts a number of days.

From what has been said for and against this method of using gelatin it is evident that it may prove to be not so valuable a hemostatic as we were led to believe when its usefulness was first suggested; or rather, to express it otherwise, the untoward effects of this treatment may more than counterbalance the good which it is capable of doing.

THE ABUSE OF REMEDIES.

In the recently published edition of a book on Therapeutics by the editor of the GAZETTE the following motto appears on the front page: "When called to guide a patient through an illness the physician should be a watchman all the time and a therapeutist only when necessity arises." That this is a correct interpretation of the duty of the physician is without doubt, and yet there are few physicians who follow its teachings, partly because they overlook it and partly because the patient expects active interference in his behalf and regards a failure to order some medicine as an evidence of lack of interest on the part of his attendant. This desire that a malady should be attacked and vanquished as rapidly as possible is most natural, and no class of patients are as restive under lack of treatment as physicians themselves when they are ill. Probably no class go from one remedy to another without giving the first a fair opportunity to do good more rapidly than physicians, and for this reason, if for no other, they should be patient with those who consult them. Now it is a well recognized fact in the case of the infectious diseases which are self-limited that do what we will we cannot abort them, although we may modify the severity of their effects on certain parts of the body; yet it is the invariable custom with the greater part of the profession to begin active dosing at once, when as a matter of fact this is entirely unnecessary. In addition to the reasons already stated for this act there is the additional reason that they have learned that this or that practice is followed by this or that authority, and they follow blindly in his footsteps, failing to note that the treatment he suggests is only to be employed when needed and not all through the illness.

At the present time there may be said to exist two classes of writers on therapeutic topics, namely, those who believe in giving remedies all the time and claim that they get good results, and those who, having studied with care the whole realm of therapeutics, recognize that there are what may be called limitations to treatment, and that oftentimes it is well to let the *vis medicatrix naturæ* have an opportunity of bringing about recovery, always recalling the fact that all our measures must be aids to this force and that if a drug opposes this force the effects are disastrous.

A good illustration of the administration of a drug for the relief of a condition, and an example of the damage which that drug is capable of producing, is the employment of chlorate of potassium internally in the treatment of diphtheria and membranous croup. This substance has very little germicidal power, practically no influence upon the false membrane, and a comparatively feeble influence upon the mucous membrane itself. On the other hand it is, next to the cyanide of potassium, the most poisonous of the medicinal potash salts. It is irritating to the kidneys, breaks down the blood and interferes with its oxygen carrying power, and yet for a generation this substance in one form or another has been poured into the stomachs of children whose kidneys were already breaking down under the work of excreting the poisons which were accumulating in their blood. Similar remarks hold true, but with somewhat less force, concerning the routine use of coal-tar products in all infectious fevers, in connection with the use of opium in certain forms of Bright's disease, and finally our attention has been called to a case of poisoning by chloroform which has recently been reported in one of the medical journals, in which the author after describing his treatment is frank enough to add these words: "It was nearly two days before the patient recovered from the effects of the drastic measures instituted to save her life." This statement is the more noteworthy since from the description of the case the patient was at no time exceedingly dangerously ill, although sufficient strychnine was given to produce at the end of an hour signs of strychnine poisoning. Notwithstanding this fact more strychnine was given. It is not often that one is conscientious enough to make such a report about a treatment which he has instituted, but it is well for us all from day to day to look back over our cases and to analyze our treatment of them with the object of discovering, first, whether everything that we have prescribed was absolutely needed, and second, and more important, whether anything that we prescribed did more harm than good.

TREATMENT OF WOUNDS OF THE THORAX.

In view of the progress made in abdominal surgery and the very definite rules laid down and generally accepted in regard to non-penetrating and penetrating wounds of the abdomen, it seems singular that the teaching concerning wounds of the chest is, with the exception of the modifications incident to antiseptic surgery, very much the same as that which was accepted twenty or thirty years ago. Nor have there been collections of cases, nor reports of individual experiences, nor collective studies upon this important subject even remotely commensurate with those which have marked the medical literature of abdominal lesions. In this relation a communication of Klett (*Deutsche Zeitschrift für Chirurgie*, October, 1898), based upon Burckhardt's experience with eighty-six stabs and twenty-four gunshot wounds of the chest, is instructive. In our Civil War eighteen bayonet wounds of the chest were reported, with nine deaths. Prahl collected forty-two wounds of a similar nature inflicted during war, twenty-two of which ended fatally. There were seventy-eight spear wounds of the chest reported in the German army between the years 1888 and 1896, only eight of which were penetrating. Two of these died because of wounds of the heart; two were invalided because of subsequent pleurisy. The other four recovered.

The mortality of gunshot wounds of the chest collected from reports of the various wars in recent times is 27.5 per cent, and is about the same for the wounds inflicted in peace either accidentally or intentionally.

The treatment recommended by Burckhardt is one which commends itself as in accordance with the general principles of surgery as practised to-day. All stabs, whether penetrating or not, are enlarged under ether layer by layer until the pleura is reached, thus converting the puncture into an open wound and enabling the surgeon to thoroughly cleanse the tract.

In the majority of instances the wounds inflicted in peace are by means of thoroughly infected instruments, as for instance pocket-knives and ice-picks, and a fairly large proportion may be expected to suppurate. This infection is likely to extend from the parietes to the pleura itself, and to be followed by a secondary empyema. Exploration also enables the surgeon to determine whether parietal vessels, such as the internal mammary or intercostal, have been wounded, and thus to avoid the dangers of fatal primary or consecutive hemorrhage. Unless large blood-vessels have been cut the wound of the lung can usually be left to itself.

In the case of gunshot wounds Burckhardt simply cleanses the orifices of entrance and exit, since he holds that such wounds are less likely to become infected than those by steel. There seems no good reason, however, why the general principle of exploration should not be carried out here, since dangers of hemorrhage are quite as great as in the case of stab wounds, and since thus can be obviated the possibility of a general emphysema.

Of the eighty-six stab wounds treated by Burckhardt, thirty-two were penetrating; twenty-eight of these were converted into incised wounds and were thoroughly disinfected; twenty healed promptly. In one case pericarditis developed, in one case pleuritis, in one hemothorax, and in five empyema, which required a secondary operation for its cure. All patients were finally discharged well.

In four patients the primary disinfection was omitted. One healed promptly, two suffered from empyema, the third died from infection which started along the track of the wound, and the fourth recovered after an attack of pleurisy.

Of the twenty-four gunshot wounds treated, two died as an immediate consequence of extensive injury; a third patient died on the twenty-eighth day after complete healing, of fatty heart. Of the remaining twenty-one cases, fourteen showed absolute signs of wound of the lung. They all got well; six, however, suffered from pleurisy, two even required drainage. One suffered from pericarditis, and was later on treated for empyema.

In sixteen cases the position of the bullet remained unknown.

A further investigation as to the after-history of these cases showed they regained their health completely and were able to perform even arduous work.

This important communication, based as it is upon a very large individual experience, apparently shows that the common practice of at once applying an aseptic or antiseptic occlusion dressing to penetrating or non-penetrating wounds of the chest is a procedure which should be adopted only when the patient is so placed that he cannot be operated upon under circumstances of proper

surgical cleanliness. It would seem that all wounds should be explored down to the pleura and should be thoroughly cleansed and drained, and that an effort should be made to discover whether or not parietal vessels are bleeding.

Reports on Therapeutic Progress

THE TREATMENT OF RHINOPHARYNGITIS IN CHILDREN.

The *Journal de Médecine de Paris* of September 25, 1898, recommends the following treatment: The nasal cavity should be sprayed by the following solution, or solid vaselin may be employed and the ointment introduced into the nasal spaces:

℞ Antipyrin, 7 grains;
Vaselin, 6 drachms;
Boric acid, 1 drachm.

In other instances, where the child objects to this treatment, the following may be used:

℞ Menthol, 1 to 3 grains;
Olive oil, 2½ drachms.

This mixture may be dropped into the nose.

In instances where secretion is chronic and profuse the following powder may be placed in the nasal cavities:

℞ Aristol and lactose, of each 1 drachm;
Aceto-tartrate of aluminum, 1 drachm.

It is well at the same time to wash the nasal mucous membrane once or twice a day with hot water containing boric acid, or salt, or one of the natural saline waters. Where the glands are torpid and the secretion is tough and chronic, the following liquid may be applied to the pharyngeal wall:

℞ Powdered iodine, 3 grains;
Iodide of potassium, 30 grains;
Glycerin, 1 ounce;
Essence of peppermint, 4 drops.

CHLOROFORM ANESTHESIA.

Many years have elapsed since the Hyderabad Commission undertook its well-known inquiry into the action of chloroform vapor, and since then the subject has been widely and incessantly discussed. Notwithstanding the great amount of interest that has been excited by the subject, and the large amount of energy that has been displayed by those who have taken part in the inquiry, it can hardly be said that our knowledge of the action of chloroform has been advanced to any appreciable degree, nor that any of the points at issue have been settled.

Chloroform continues to claim as many victims as of yore, and its use as an anesthetic has, in some quarters at least, been more loudly condemned than ever. Moreover, the diversity of opinion regarding the best method of administering the anesthetic appears as remarkable as ever.

The confusion which surrounds the subject becomes daily more embarrassing to the surgeon who has much operative work to perform. On the one hand he is met with the difficulties and restrictions of ether anesthesia, whilst on the other hand he is confronted with the supposed dangers of chloroform. He is assured by one authority that the use of chloroform as an anesthetic is entirely devoid of danger, whilst others, who claim equal experience, maintain that its use is almost criminal. There is little doubt that one explanation of the meager results which have followed this inquiry is the fact that the discussion has, from its commencement, been carried out in a spirit of such violent controversy that it has tended from time to time to lapse into a mere exchange of personalities.

The unfortunate introduction of the controversial element into the discussion has tended not only to clog the progress of the investigation, but has also served to obscure the issue, and divert the course of inquiry into channels of minor importance.

One of the most remarkable points connected with the subject, and one which has hitherto received but little attention, is the fact that chloroform anesthesia is carried out with such remarkable success in India and with an immunity from fatal results unknown in England or America. Hardly a week passes without the record appearing in one of the English medical journals of one or more deaths from chloroform, yet the pages of the *Indian Medical Gazette* for the past ten years contain reports of only three fatal cases. It is quite possible that other cases may have occurred besides those which have been recorded, but the proportion of such unrecorded cases is probably quite as great in England and America as in India.

The comparative safety of chloroform anesthesia in India is a fact which merits the closest inquiry, and we believe that such an investigation would be likely to produce more fruitful results than some of those others which have been undertaken in the past few years.

The conditions under which chloroform is used as an anesthetic in India differ very widely from those which exist in England.

In the first place, as the operation is conducted with open windows and doors, the air which the patient breathes is much purer, and the percentage of carbonic acid gas is very much less than it is in colder climates. In the second place, the temperature of the air is very much higher as a rule than in England, and evaporation proportionately increased. It is quite conceivable that both these conditions should have the effect of minimizing the danger of chloroform anesthesia.

Another factor which possibly may have a favorable influence is the fearlessness of the natives of India in regard to the effects of chloroform. The ignorant classes in India, who form such a large bulk of those treated in hospitals, seldom exhibit anything like the amount of fear of the anesthetic which is so common amongst English people; a fear which in the latter case is justified by the frequency of fatal results in their country. In England there are probably few persons who have not had personal knowledge of some fatal case, whilst in India the opposite is the case.

We draw attention to these facts as affording indications as to the direction which such an inquiry should take. There are doubtless many other circumstances which share in producing a condition more favorable to chloroform anesthesia as practised in India.

We believe that an inquiry into the matter would prove of great value, and we trust that ere long some one may be induced to undertake an investigation of this nature.—*Indian Medical Gazette*, June, 1898.

THE ACTION OF THYROID AND PARATHYROID EXTRACTS UPON METABOLISM IN THE INSANE.

This very important topic is discussed by EASTERBROOK in the London *Lancet* of August 27, 1898. He first proves that the thyroid is a profound catabolic stimulant. With the patient at rest in bed and on a fixed mixed diet there is a great increase in all the excreta, especially in the water and carbonic acid, and to a less extent in the urea and other products of nitrogenous metabolism. Thyroid thus greatly accelerates the splitting up and oxidation of the tissues. The fats of the tissues suffer most severely, and the reason is probably simply this—that the fats are the most fluctuating of the tissue substances; they are the most readily formed and the most easily lost of the body stuffs, consequently when a powerful catabolic stimulant such as thyroid is introduced into the system the fats are the first to be burned up, and when the thyroid becomes eliminated from the system fat is rapidly laid on. Amongst the fats thus affected are probably the so-called "azotized fats," or phosphorized constituents of the central gray matter, and the early excess of phosphoric acid in the urine is probably derived from this source. The tissue carbohydrates are probably also considerably oxidized, and although the clinical proof of this is not so clear, the great muscular weakness and incapacity for physical exertion during thyroidism may indicate that the glycogen in the muscles, which is the chief immediate source of muscular energy, has been largely burnt up and so is not available. The tissue proteids are also excessively wasted, the "unorganized" proteid being probably affected first, and finally the living proteid or bioplasm itself. After the thyroid is eliminated from the system a gain in weight sets in, and there are other evidences of a powerful anabolic reaction. The rationale of this change seems to be explainable by Hering's theory of the "internal self-adjustment of bioplasm," according to which the bioplasm, when it is being catabolized by some stimulus (*e.g.*, thyroid), tends less and less towards catabolism and more and more towards anabolism, which sets in with a rebound as soon as the catabolic stimulus is removed.

As to the channels by which the thyroid reaches the tissues, the changes in the blood during thyroidism probably indicate that the drug is distributed by the blood to the tissues, but at the same time the early occurrence of the sensory motor and mental phenomena during thyroidism, the evidences of hyperactivity of the central gray matter followed by the signs of its exhaustion, and the early increase of the phosphoric acid in the urine, all seem to the writer to indicate that the thyroid specifically stimulates the central nervous system and through it the metabolism of the tissues. In direct support of this Easterbrook mentions that he fed two rats upon porridge and water, but to one of them was also given daily one thyroid tabloid. The thyroidized rat died with tremors and other nervous symptoms on the fourth day, and while the brain cells of the healthy rat were normal in appearance, those of the thyroidized rat showed distinct chromatolysis, many of the cells being "ghost-like."

Finally, a word in explanation of the conflicting results of the removal of the thyroid

and parathyroids. There seems to be a strong similarity between the "tetanic" symptoms which follow parathyroidectomy, the acute "neurotic" symptoms which follow thyroidectomy, and the toxic phenomena of thyroidism. It would seem that the essential result of thyroidectomy is an artificial myxedema (Horsley's "mucinoid" and "marasmic" stages), and that the acute or "neurotic" effects of thyroidectomy are accidental and, like the symptoms of parathyroidectomy, may be accounted for (1) by the youth of the animal operated upon—the "acute" symptoms are always most common in young animals and are usually absent in old animals; (2) the interference with the rich nervous connections of the thyroid during the operation; and (3) the wounding of the thyroids, in consequence of which colloid is spilt and thyroidism is produced by absorption of the juice. Where surgeons meet with this mishap it is common for them to have a more than usually distinct febrile reaction and tetanic symptoms after the operation. In the removal of the internal parathyroids, which are usually incorporated in the deep surface of the thyroid, the thyroid cannot escape severe manipulation or even actual wounding.

CIMICIFUGA IN TINNITUS AURIUM.

Dr. Albert Robin and Dr. Mendel extol cimicifuga in this complaint, and cite, among other cases, one in which a plug of wax, the obvious cause of the buzzing, was purposely left, while the buzzing disappeared in two days under treatment. Here are their conclusions: (1) Buzzing of the ear may be considered as the reaction of the auditory nerve to direct or reflex irritation; (2) *Cimicifuga racemosa* possesses an action upon the auricular circulation and upon the reflex irritability of the auditory nerve—the average active dose is thirty drops of the extract a day; (3) buzzing which has existed more than two years appears difficult to influence by cimicifuga.—*New York Medical Journal*, July 23, 1898.

THE ACTION OF SUPRARENAL EXTRACT ON THE CIRCULATION.

Velich (*Wien. Med. Woch.*, 1898, No. 26) has confirmed Schäfer and Oliver's discovery that injection of suprarenal extract raises the blood-pressure and stimulates the vagi, and where these have been put out of action or the medulla cut through, causes acceleration of the pulse. The former effect is due to contraction of the small vessels, particularly in the abdominal cavity, the latter to direct stimulation either of the heart muscle or the intracardiac ganglia, together with some influence through the cervical cord. He has also shown that even where the whole cord has been destroyed the injection of large doses of suprarenal extract still causes a noteworthy rise of blood-pressure, which must thus be produced by stimulation either of the vessels themselves or of the peripheral vasomotor mechanism. Continuing his investigations, Velich finds that the medulla is also concerned in the rise of blood-pressure following injection of suprarenal extract, and that intravenous injection still causes this rise in animals which have been deeply poisoned with curare or chloral. These drugs in large quantity practically abolish the functional activity of the spinal cord. In deep curare poisoning the pulse acceleration occurs also when the vagi are intact, showing that their nuclei are poisoned by a large quantity of the drug.

A further series of experiments was performed upon the pulmonary circulation in order to decide whether vasoconstrictor fibers for the pulmonary vessels exist. It was found that the intravenous injection of suprarenal extract leads to a slight rise of pressure in the pulmonary circulation. The principal cause of this rise is that the right heart receives an increased supply of blood from the hyperemic brain through the superior vena cava, while the left heart does not empty itself properly. Hence the existence of a special vasoconstrictor mechanism, central or peripheral, for the pulmonary circulation cannot at present be established. Thus, for example, warm suprarenal extract causes vasoconstriction when applied to most parts of the body in animals or to the human skin, but evokes no pallor when dropped on to the surface of the lungs.—*British Medical Journal*, Aug. 6, 1898.

QUININE HEMOGLOBINURIA.

Murri (*Arch. Ital. de Biologie*, tome xxviii, fasc. iii, 1897) reports a case of this affection. A girl aged seventeen contracted tertian ague in July, 1893. In spite of treatment she was not cured in January, 1894, and was still taking quinine. At that time she had an attack of ictero-hemoglobinuric fever directly after taking quinine, and subsequently whenever quinine was taken such

an attack was observed, consisting in rigors, vomiting, followed by smoky urine, and lastly, jaundice. The spleen became larger and firmer, and sometimes the liver enlarged also, with hypochondriac pain. At the beginning of an attack there was simple polyuria; then from being acid the reaction became alkaline; and lastly, peptone, serum albumen, globulin, hemoglobulin, and urobilin, hyaline casts, epithelial renal cells, and leucocytes, but no red corpuscles or bile pigment, appeared. After an attack the above all disappeared, the serum albumen and peptone last. An examination of the blood showed there was a diminution of the number of red corpuscles, but the malarial parasite could never be found. In spite of this effect of quinine it had its usual influence in prolonging the interval between the attacks of true malaria.

The author gives reasons for believing that quinine hemoglobinuria occurs only in those whose organs have been altered by malaria, quinine alone being insufficient to produce it: (1) For twenty years he has been trying to produce quinine hemoglobinuria in animals without success. (2) In a healthy man 75 or even 300 grains of quinine produces no hemoglobinuria, while in this girl, after malaria, 1.54 grains did with absolute certainty. (3) No case of quinine hemoglobinuria has been reported which was not complicated by malaria. (4) The proof that one has not to do with an idiosyncrasy in a person with whom malaria is a coincidence is furnished by the fact that quinine intoxication appears in most cases, sometimes after a good many doses have had to be taken — that is, after the malarial poison has had time to act on the organism, but not before. (5) It is not produced by an intolerance gradually set up by repeated doses of quinine, for large and repeated doses are often given in non-malarial diseases, and yet not a single case of quinine hemoglobinuria has been reported in these. (6) This hemoglobinuria is almost unknown in Europe, except in Sicily and Greece, and becomes relatively frequent in extra-European countries where malaria is more virulent. (7) The author's patient had three ictero-hemoglobinuric attacks after the malaria was cured, and without any quinine having been given. This shows that the hemoglobinuric mechanism had become so easily set in motion that its usually specific stimulus (quinine) could be replaced by others, though exactly what these were could not be discovered. It seems as though the biographical change left in the patient by malaria would not be permanent, for some months after the patient had been cured of her malaria and had had no quinine attacks a little over 1½ grains of quinine given experimentally had very little effect, and even 7½ grains, though causing intoxication (fever, albuminuria, peptonuria, and urobilinuria), produced no hemoglobinuria.—*British Medical Journal*, Aug. 27, 1898.

HEMORRHOIDS AND THEIR TREATMENT.

The *Medical News* of August 6, 1898, contains an article on this topic of no little interest, by Dr. ERDMANN. From his standpoint, hemorrhoids are distinctly a surgical affection, although the palliative treatment will receive its share of consideration. The close association of hemorrhoids with the genitals makes the discussion doubly interesting to the specialist and the general practitioner. It is not the object of the writer to enter into a prolonged discussion of the causes, nor is the anatomy to be considered in detail, but he trusts that a short description of the pile-bearing area and a few words relative to the causes of hemorrhoids will not be amiss.

The pile-bearing area is but about two and one-half inches in length, beginning at the anal margin, richly supplied with branches from the sacral plexus, and abundantly furnished with arterial and venous channels. It is interesting at this point to note the descriptions given to the end filaments of the veins. They are variously stated as ending in the so called derivative circulation to that of small sacculations or dilatations, and it is this latter description that is most frequently accepted. To this accepted venous termination the entire hemorrhoidal theory is ascribed. The arteries supplying the pile-bearing area assume a course parallel to the long axis of the bowel instead of transversely, as in the remainder of the intestinal tract. The mucous membrane in this region is peculiarly arranged, particularly so at the lowermost portion of the area. Here the membrane is thrown into folds or columns, forming sinuses known as the columns and sinuses of Morgagni. These folds and columns, with their intervening pouches, frequently, especially so when inflamed or congested, are taken for piles, and it is in this structure that the quack finds his rich reward. These pouches can be everted in all cases, when the bowel is in a normal state, by placing the hands on the buttocks, the patient

then bearing down, and as he does so traction being made on each buttock with the fingers. They will then be seen as folds of mucous membrane, and resemble small semilunar valves with their concavities upward. A probe can be passed downward behind the membranous-like flap for a distance varying from one sixth to one-half an inch, and owing to this peculiarity they are frequently but wrongly called fistulæ.

One who sees many cases of these protrusions is astounded in taking the histories at the percentage of patients who ascribe their disease to attacks of diarrhea, although almost all accepted authors lay great stress on the influence of constipation as the causative factor. It cannot be gainsaid that a relative condition exists between varicose veins and hemorrhoids, as in a great many cases of hemorrhoids other varicosities are found. Naturally, with a predisposition to varicosities in the veins at other parts of the body, a very slight exciting cause is necessary to produce the evil. Some of these causes are obstruction to the venous return, as produced by constipation; intrapelvic tumors; retrodisplacements of the uterus; pelvic exudates; atonic condition of the musculature of the rectum and sigmoid; rigidity or stricture of the anus; expulsive efforts as noted during attacks of diarrhea, and in the expulsive efforts when the outflow from the bladder is for any reason involved, as in cases of stone, stricture of the urethra, enlarged prostate, cystitis, etc. Alcohol, sexual excesses, masturbation, and even unsatisfied sexual desire, are said to be predisposing factors. High living and sedentary habits are also contributing causes. Recently the writer operated in a case which was said to have had its origin in physical exercise. The patient in this case was a prominent amateur athlete, who said that his condition was due to overtraining.

In the general symptomatology the cardinal objective sign is the protrusion of a mass either constant or only seen following the act of defecation. This protrusion varies in size from that of a pea to one that practically surrounds the anal margin, and is from a quarter of an inch to an inch or more in length. Hemorrhage, as a sign, is as likely to accompany irritable ulcers, the so-called fissures, fistulæ, malignant diseases, and polypi, as it is to accompany hemorrhoids of the bleeding or capillary variety. Subjectively, the patient is apt to complain of pain at the time of or immediately after the act of defecation, discomfort, and a sense of an imperfectly emptied bowel, and of tenesmus, which is frequently due to the sphincter grasping the protruding mass. Pain is frequently present in the lumbar region, which may even extend to the thighs and legs. In addition to the symptoms directly referable to the anal region, there is frequently a chain of nervous symptoms of which mental depression, probably due to the fear of the trouble becoming malignant, irritability, fear of some impending disaster, and sexual impairment predominate.

Hemorrhoids, as far as the general practitioner is concerned, may be divided into two great classes, the external and internal. The external ones are those which arise from the tissues outside the external sphincter, while the internal variety consists of those which arise from the lower portion of the rectum, and are seen only when protruded after a movement of the bowels, or protruded as a result of some physical effort, or can be seen upon instrumentation with the speculum or the Kelly proctoscope. The external are subdivided into three varieties—the thrombotic, the cutaneous, and the venous. The latter variety is liable to become edematous, and is then called by some the edematous pile. The thrombotic variety is usually found in the mucocutaneous margin surrounding the anus. They are due, as a rule, to rupture of one of the veins about the anus, occurring as the result of straining during the act of defecation. The pile is hard, very painful, sensitive to the touch, bluish in appearance, and contains clotted blood. The second variety, the cutaneous, is a natural sequence of the thrombotic variety—*i.e.*, the clot is absorbed or organized so that its original site is filled with fibrous tissue. In this type there are, as a rule, no further subjective symptoms than an incessant pruritus, well marked at night and after physical exercise. The third variety of the external—*i.e.*, the venous—borders very closely in its anatomic appearances upon the type of internal hemorrhoids known as the columnar, pedunculated, or venous. In this variety of external piles there is an involvement of the mucous membrane and skin of the anus; the veins are dilated, and the mass may consist of but a single set of vessels or be of such dimensions as to almost completely surround the anus. The symptoms of this variety, barring inflammation and ulceration, are those of a protrusion non- or partially reducible, not painful and not bleeding, except when inflamed

or ulcerated. The internal class may be divided into two varieties—the capillary, or bleeding, and the columnar, venous, or pedunculated. The capillary pile is never seen externally except in cases of relaxation of the sphincter or of dilatation of this muscle. These piles resemble masses of deeply congested mucous membrane, and bleed upon contact of the finger or fecal mass; in fact, they resemble masses of healthy granulation tissue. They are seen upon the use of the speculum and proctoscope, and ordinarily present no evidences to digital examination. Blood is seen after each movement, varying in quantity from a few drops to several drachms. In addition to the local evidences, all of the manifestations of anemia are frequently seen, while the patient presents a subjective chain of symptoms which are entirely of anemic origin. This variety will eventually result in the columnar type. The second, or columnar variety, usually known by the names of venous or pedunculated, are made up of a mass of dilated veins and one or more arterial twigs. They protrude upon straining or defecation, and are readily reducible, except in case of neglect, when they are liable to become strangulated, edematous, or undergo ulceration and slough. Should any of these changes occur, it then assumes all the evidences of an inflamed pile. These pedunculated piles can be felt upon digital examination, and seen readily with the use of the speculum or proctoscope.

In examining the patient externally, the Sims position is the best, provided that the buttocks are well separated and the patient strains as though about to have a movement from the bowel; when this is done almost an inch more of the mucous membrane will be protruded than when in the stooping position. For digital examination, either the lateral or dorsal position of the patient is satisfactory. The finger should be protected with a finger-cot, thoroughly anointed with some bland lubricant. Gentle pressure is then made upon the sphincter until its rigidity is overcome. These finger-cots are so thin that the tactile sensation of the finger is not impaired to any extent, while, in addition, they protect the physician from infection and keep the examining finger clean. For speculum or proctoscopic examination the bowel should be thoroughly clean, and in all sensitive cases anesthesia should be produced. Anesthesia permits of a complete examination being made with a view to locating fistulæ and ulcers, which are frequently present in these cases.

INTESTINAL OBSTRUCTION.

PROFESSOR KOCHER, of Bern, read a paper on intestinal obstruction. It is still only too common, he remarked, to find cases treated by drugs before the surgeon is consulted. He had had seventy-seven cases of intestinal obstruction (excluding cases of disease of the rectum and external hernia); of these, twenty-six were due to malignant diseases of the bowel, and he resected the intestine in twenty-four of these cases with only four deaths. In nineteen cases tuberculous masses had produced stricture of the bowel; in eighteen of these he operated, and only one patient died. If the moribund cases and those where no operation was done were excluded there remained thirty-eight cases in which an operation was performed, and in these the mortality was only eighteen per cent. It was, however, curious that in the slighter cases, where the ileus might be said to be symptomatic, the mortality was much higher; of seven cases of volvulus there were five deaths. In fact, in the simpler cases the death-rate was fifty-nine per cent. The logical deduction from these statistics is that the great mortality is not due to the operation. The cause of death in most cases was septic absorption from ulcers occurring in the bowel above the obstruction; these ulcers were usually attributed to pressure from feces, but they occurred even when the feces were liquid; they were really due to overdistention, which led to impairment of the epithelium. It was necessary to relieve the distention as soon as possible, and this might be done by a small incision, a radical cure being postponed to a later date. Finally, he urged that surgeons should be called in to see a case of obstruction before any drug is given, and it was very advisable for the surgeon to have the benefit of the physician's opinion when making the diagnosis.—*The Lancet*, July 30, 1898.

COMMON ERRORS OF GENERAL PRACTITIONERS IN DEALING WITH CASES OF PULMONARY TUBERCULOSIS.

F. I. KNIGHT, so well known as an authority on pulmonary disorders, tells us of the errors of physicians concerning pulmonary tuberculosis in the *Boston Medical and Surgical Journal* of November 17, 1898. These errors are well known to the profession and encountered by many of them daily, and he thinks they may be diminished by briefly calling attention to them.

The first error to which the author calls attention is the failure to make an early diagnosis. An early diagnosis is not usually difficult since the discovery of the tubercle bacillus. Failure to make it, however, may be very serious, as it is especially true of this disease that the earlier its presence is discovered the more amenable it is to treatment; whereas, if there is delay till the disease is self-evident and perhaps secondary infections have taken place, there is not much chance of restoring the patient to health. The most striking results of treatment of pulmonary tuberculosis in the great open health resorts and also in sanitaria are in patents who present all the outward aspects of health from the start, who have never appeared as invalids.

Why is it that there is so often a failure to make the diagnosis early in those cases most promising of cure if taken in hand promptly, namely, those with morning cough and expectoration, but no fever or other general symptoms? The reason is that the patient naturally makes light of it, and perhaps contents himself with asking the doctor on the street for a prescription for a little cough, and this may be repeated several times without any suggestion of examination on the part of the physician, or until the patient looks and feels sick.

Another reason is that the physician may be the personal friend as well as medical adviser of the patient and shrinks from a knowledge of the results of a physical examination. This is also sometimes true in cases of a physician and a member of his own family.

The patient naturally considers a slight dry cough as due to some throat irritation, and a little hemoptysis as coming from the same region; but he should not be encouraged in this idea, as is too often the case, by the physician. Any cough should necessitate frequent examination of the chest, until the soundness of the lungs is proven by long acquaintance. Hemoptysis very rarely comes from any lesion of the throat, but usually from the bronchi. Another mistake is neglect to pay proper attention to fever, the physician very likely coinciding again with the patient that he has a "touch of malaria." Time and again has the writer seen patients with a dry cough, chills and fever — not at all of malarial type, however—allowed to go on for weeks and months taking quinine, and no physical examination suggested.

A second error is the failure to admit the gravity of the situation the moment it is discovered, and to put the patient at once in the best possible condition for recovery. Niemeyer used to say that the danger of a consumptive patient was "that he become tuberculous." In the light of modern pathology the writer states that he should say that the danger of a tuberculous patient is "that he become consumptive"—that is, subject to secondary infections.

Unfortunately, too many physicians wait till the patient is consumptive, and then perhaps recommend expensive treatment, which is almost surely useless.

It is better, as a rule, that the patient also should be fully informed of the gravity of the situation, as in this way only will he give thorough cooperation in the effort for his recovery. Of course, he should be fully impressed with the hope of recovery if the proper course is pursued.

A third error is, while temporizing, recommending treatment not only useless, but positively injurious. Giving medicines which take away the appetite and interfere otherwise with digestion does a great deal of mischief. Cough syrups, cod-liver oil, and creosote do a large share in hastening the decline of patients. If any sedative is required it should be given in as simple a form as possible, and without syrup. The author does not mean to say that cod-liver oil never does good, for there are patients who can take and assimilate it with ease, and greatly to their benefit, but it is cruel to prescribe it in a routine way without selecting cases and watching effects. Who has not many times seen patients with thickly coated tongues swallowing large doses of oil faithfully three times a day, eructating it all the time, and capable of assimilating neither that nor any other food? Neither will he deny that creosote does good in some cases in modifying the bronchial secretion and improving digestion, but he believes that large doses as a rule take away the appetite and do more harm than good. It, like cod-liver oil, should be administered tentatively.

Another unfortunate mistake is often made in giving a general unrestricted order to "drink whiskey" as a preventive of consumption. The injudicious use of alcoholic stimulants, by depressing the vital forces, not only makes the patient irritable and dissatisfied with himself and everybody else, but very seriously interferes with his recovery.

Many patients also are seriously injured by being told to exercise when they should

be kept quiet. This pertains especially to patients in a febrile condition.

A grievous error is often committed in the matter of sending patients away from home. Sometimes those are sent away who have only a few weeks or months to live. Such patients in almost every case would naturally be better off at home. Others are advised to change climate who cannot possibly afford to remain away from home long enough to do any good. They go away, live in miserable quarters, on poor food, and having spent all their money, in a short time are obliged to return. They naturally would have spent their little money to much better advantage at home.

Insufficient care is exercised in advising patients who are able and fit to make a change as to the selection of a climate. Too often the advice is simply to "go south" or "go west." In such cases the patient often flits about from one climatic condition to another, without staying long enough to fully experience the modifying effect of any one, perhaps till the chance for beneficial action is past.

The last error, a very grave one also, to which the author calls attention is allowing the patient to go without sufficient medical supervision. This disease, like any formidable enemy, requires constant watchfulness—to help gains promptly, and as promptly to stay relapses. The general practitioner himself is apt to fail in this because his attention is absorbed in critical acute cases; but he also fails to place his patients in proper medical care when he sends them away, whereas the presence of a physician skilled in treating such cases should often determine the selection of a residence for the patient.

These are a few of the more serious of the errors in dealing with cases of pulmonary tuberculosis, by means of which hundreds of lives are sacrificed which might have been saved. Therefore it becomes us to reiterate and reiterate our warnings as long as the dangers continue to exist.

THE TREATMENT OF CHOREA.

An article with this title is contributed to *Treatment* of November 10, 1898, by WYNTER. He thinks that the first matter of importance in the cure of chorea consists in keeping the child in bed, necessitated by the tendency to endocarditis, and emphasized by its beneficial effect in shortening the disease or bringing about a speedy cure in cases where it has existed without material benefit from drugs for weeks and months while the child remained up and about.

The efficiency of treatment by arsenic is often marred by insufficiency of dose. It is common practice in the case of children, who make the bulk of the patients with chorea, to prescribe two or three drops of Fowler's solution. This may answer in a few mild cases, but in the majority it is insufficient, and the dose must be increased to ten or even fifteen drops in the course of ten days or a fortnight if the symptoms do not decline. A good example of this was afforded by a child of five, who was admitted to the Middlesex Hospital with extensive movements, and in whom a dose of three minims given for some weeks produced little or no effect; but on doubling the dose for three days, and then quadrupling it, the movements rapidly subsided. Toleration is readily secured provided the drug is not given in too large a dose at first or the dose increased too rapidly, the medicine always being given, with sufficient dilution, immediately after food.

That the exhibition of arsenic may in some cases be carried too far and produce serious neuritis is exemplified in cases exhibited at the Clinical Society during 1898 by Dr. Batten, in which fifteen minims of Fowler's solution had been given three times a day. As in the case of antipyrin rash, this accident is more likely to occur when the patient is not kept in bed, so that the intensity and duration of medication are increased to combat the unfavorable influence of activity and excitement. This furnishes an additional reason for keeping the patients in bed under close observation during treatment by powerful drugs.

In all the cases a liberal diet is required without stimulants, the subjects of chorea being usually of a thin and nervous type, and the disease is itself exhausting and commonly associated with anemia and debility.

The principal complications are endocarditis or pericarditis, which in the acute stage are best treated with salicylates, as in rheumatism. The indications are chiefly a hurried, weak pulse, with palpitation, some precordial discomfort, and perhaps a soft blowing murmur or friction sound. They are so slight, and may be so ill-developed, that in a restless child it is easy to overlook them. Only in the latter stage, of contraction deformity of the valves, do the rough murmurs with evidence of cardiac enlargement and backworking show themselves.

In a few cases in which the actual movements are so violent and continuous as to bring about contusion and abrasion of skin, with exhaustion, wasting, and loss of sleep, direct sedatives are required. Chloral and the bromides are then generally serviceable, the dose being daily increased from ten or twenty grains until either the symptom is subdued or physiological effects of the drugs produced. If this treatment fails, recourse must be had to subcutaneous injections of morphine or even the inhalation of chloroform.

When the active phase of the disease declines the patient still needs care and treatment on account of the remaining anemia and debility, the mental condition of hebetude and intractability, and the tendency to recurrence of the malady, apart from the more serious heart complications which may have resulted.

The best tonics are the milder preparations of iron, either the wine or citrate, with liquor arsenicalis in comparatively small doses (three to five minims), or cod-liver oil; absence from competition with others, either in school or on the playground, for some months, which are best spent at the seaside or in the country, where quiet amusement can be obtained without books or boisterous companions. In protracted cases and during convalescence great benefit may be derived from massage, passive exercises, or such diversion as may be obtained in the use of a skipping-rope or hoop. For the most part it is best to avoid books and such toys as appeal to the imagination and provoke spontaneous activity of the brain.

ANTIDIPHTHERITIC SERUM IN OZENA.

HOLGER MYGIND, of Copenhagen (*Journal of Laryngology, Rhinology, and Otology*, August, 1898), has treated ten cases of ozena with subcutaneous injections of antidiphtheritic serum. Of these, seven were young soldiers, aged nineteen to twenty-two; while three were girls, aged respectively ten, twelve, and fourteen, all three being sisters, and daughters of a non-commissioned officer. He took great care to select only such cases for treatment as were pronounced and true cases of genuine ozena, and in all there were present typical fetor, discharge of crusts, and atrophy of some part of the osseous walls of the nasal cavity; besides, in all cases the mucous membrane of the nose was of the character generally described as atrophic—that is, it was pale, shrunk, and dry. He first commenced injecting subcutaneously twenty cubic centimeters of the antidiphtheritic serum prepared in the bacteriological laboratory of the Copenhagen University gratuitously for the Danish medical profession. This serum has a strength of about one hundred antitoxin units in each cubic centimeter. The dose was repeated—as is done in cases of diphtheria—a few days later. This dose was soon found to be too strong, or could not at least be repeated so soon, the patients getting severe symptoms of serum infection. By degrees he found ten cubic centimeters to be a proper dose for adults and five cubic centimeters for small children, increasing the dose now and then to fifteen cubic centimeters in adults. He also found it best to wait to repeat the dose until eight to twelve days had elapsed after the previous injection, to prevent accumulative effect.

According to the numerous experiments the author has made there can be no doubt that it is a fact that subcutaneous injection of antidiphtheritic serum in cases of genuine ozena has an immediate and very marked effect upon the mucous membrane of the nose. This action generally appears toward the end of the first twenty-four hours after the injection, the patient discharging the crusts with more ease; besides, the crusts are mixed with mucous or mucopurulent secretion. During the following days the mucous membrane of the nose loses its dry and pale appearance, becoming moist and assuming a natural vivid-red color, and also swelling considerably. The color and the swelling are very different from the color and swelling of the mucous membrane as seen, for instance, in cases of using Gottstein's tampons or copious syringing, having as a rule not the slightest appearance of irritation. Besides, the crusts are seen to be surrounded with mucous secretion, which also appears on the surface of the mucous membrane where there are no crusts. After this period of reaction a period of counter-reaction generally is seen, the pituitary membrane beginning to assume its red character; but after a second or third injection—a greater number of injections might perhaps be necessary now and then—Mygind has, in all cases observed by him, seen a lasting improvement. This improvement has in a few of his cases been only small, though distinct; in most cases it has been very considerable, the patients having lost the fetor, and either never discharging any crusts or only discharging small ones

now and then. In one case the result approached very near to recovery.

Mygind concludes by expressing the opinion that the injection of antidiphtheritic serum is the most effective remedy for ozena yet known. He has made experiments to determine what it is in the serum that produces the effect. They are not yet complete, but he has satisfied himself that the presence of the toxins is of no importance, but that it is the serum alone which acts. He adds that he has obtained results apparently as good as those here reported by injections of normal horse serum in ozena.—*British Medical Journal*, Oct. 22, 1898.

CARBOLIC ACID POISONING.

LEWIN (*Deutsche Medicinische Wochenschrift*, April 21, 1898) appends some remarks upon a suspected case. The severity of the poisoning may be due: (1) to the place from which the poison gains access into the blood; (2) to the quantity taken; and (3) to the concentration. Many cases of fatal poisoning have been recorded where a non-lethal dose has been injected into the rectum for the purposes of treatment. Death has been known to occur after a dose of six grains taken by the mouth, and recovery has ensued after doses of thirty or thirty-five grains; in the latter case the carbolic acid was dissolved in alcohol, which would favor its absorption into the blood. Even 120 grains of raw carbolic acid has been taken, and recovery ensued. One grain of carbolic acid, the amount found in the suspected case, could not produce death. The author found that when animals were poisoned with concentrated or weak solutions of carbolic acid, and this was allowed to remain in the stomach after death, appreciable quantities could pass out through the stomach walls into the abdominal cavity. Death may sometimes be produced without the poison entering the blood in a so-called reflex fashion. As regards the action of carbolic acid on the mucous membranes, a one-per-cent solution produces no change, and a two-per-cent a slight color change, to be seen only on careful examination. A four- or five-per-cent solution produces a white discoloration, which disappears in the living subject in three to four hours. Fluid ninety per cent, or the crystalline substance, calls forth a white slough upon every tissue of the body, whether applied pure or in water. The symptoms produced by carbolic acid vary: (1) If a concentrated solution (sixty to ninety per cent) is drunk, the patient may die rapidly with or without previous vomiting, or he may become comatose, with stertorous breathing, slow pulse, vomiting, etc., from which he may die or recover; (2) if weak solutions (one to three per cent) are taken, there may be prostration, unconsciousness, spasm, vomiting, etc. When weak solutions are taken into the stomach the symptoms develop slowly, giving time for treatment.—*British Medical Journal*, Oct. 22, 1898.

EXERCISE AND OVEREXERCISE.

Dr. LAUDER BRUNTON opened the session of the York Medical Society recently by an address on exercise and overexercise, in which he said, as was to be expected, a great many wise things with which every physician will agree. He said, for instance, that exercise which put into action every muscle of the body, but did not put any one into action for too great a length of time at once, or in too violent a manner, was exceedingly beneficial, but in applying this excellent principle he had the temerity to compare unfavorably with lawn tennis the three most popular physical recreations of the day—cricket, golf, and cycling. Moreover, he classed together croquet, cricket, and golf—rather a curious collection—on the ground that in playing them there was not the same general movement of the whole body that was necessary in lawn tennis or polo.

As to croquet all will probably be ready to agree, but as to cricket and golf it is not likely that their devotees will be disposed to accept Dr. Brunton's rather sweeping assertion. What muscles of the body are brought into play in lawn tennis which are not brought into play by, say, a fast bowler, we should be rather curious to know; and as to golf, the distribution of the stiffness after a day's play in a man out of condition and practice leads at least to the suspicion that very few muscles in the body have not been called into action. As to cycling, Dr. Lauder Brunton said that it tended to narrow the chest and to cause more or less a permanent stoop. He added that, as it had become so very general an amusement, its physical exercises must be very carefully watched. Like most of us, Dr. Brunton has been struck by the fact that the girl of the period tends to be divinely tall, and he seems disposed to put this down to the great popularity of lawn

tennis a few years ago. It is certainly a pity that this very excellent game appears to be going out of fashion owing to the great popularity of cycling, which we should be disposed to agree with Dr. Brunton is not an exercise so well calculated to produce an all-round development of the muscular system.

Although Dr. Brunton spoke in faint praise of cricket and golf, he admitted that they shared with tennis one essential feature of a good game—intermittent action of so many groups of muscles. Passing on to speak of overexercise, he observed that what was sufficient exercise for the muscles might be overexercise for the heart, so that schoolboys ran a risk of injury if their athletic power were judged from their apparent size and strength and not according to the strength of the heart.

Dr. Brunton then pointed out that a continuous strain upon one set of muscles was not only painful and exhausting but injurious, and illustrated this point very happily by referring to the fatigue experienced by men and women employed in shops who were compelled by custom to stand for many hours a day. He showed a rest by means of which a shopwoman could sit down and take the weight of the body off the legs, whilst movements behind the counter were hardly interfered with. The cause of the quickened breathing associated with muscular exertion was really the poisonous products formed by muscular action, and the shortness of breath was due to heart disturbance. Thus, in the case of growing boys, football or paper-chases might lead to distinct heart strain.

Another factor which Dr. Brunton said must be regarded in exercises for boys and young men was that mental fatigue caused bodily exhaustion. If boys were pushed both at lessons and at exercises they were much more likely to break down than if they were pushed at one or the other alone. In adolescence the heart, like other muscles, though it was more easily strained, recovered more readily, and with moderate care would recover completely.

In conclusion, Dr. Brunton dwelt on the important point that, while in middle life the heart was less liable to strain, yet as age advanced, and especially if the arteries became atheromatous, the heart was not only more easily affected by strain, but had less power of recovery—a fact which has its obvious bearing on the kind and amount of exercise which should be taken as age advances.—*British Medical Journal*, Oct. 22, 1898.

ORGANOTHERAPY IN DIABETES.

With the discovery of the value of the thyroid treatment in cases of suppression of the functional activity of the thyroid gland, a new hope arose that some other grave and hitherto intractable diseases might be favorably influenced by treatment based on similar lines. Diabetes was one of the diseases to which early attention was given in this regard. Experiment has distinctly proved that extirpation of the pancreas in certain animals will surely produce diabetes, and morbid anatomy has equally demonstrated that in at least one class of cases of human diabetes a total disorganization of the pancreas has sometimes been found; thus it appears that diabetes might be due to the suppression of some function of this organ, and this apart from the mere secretion of pancreatic juice. It was therefore hoped that pancreatic feeding might supply the deficiency in the same way as thyroid feeding had so distinctly supplemented the functions of the thyroid body. These expectations have not, however, been realized, and with few exceptions the treatment of diabetes proved to be of the pancreatic variety; but feeding with pancreas has ended in disappointment.

Dr. Ferdinand Blumenthal has recently endeavored to throw light on the causes of the failure of this treatment of diabetes, and to indicate the lines of investigation to be pursued in the future. The gist of the whole question obviously lies in the discovery of the active principle of the pancreas, the absence of which is believed to lead to the development of the pancreatic form of diabetes. Experiment renders it probable that this active principle is a glycolytic ferment, distinct, as the researches of Blumenthal himself as well as others show, from the oxidative ferment. On this supposition a rational treatment of diabetes would consist in supplying this ferment in cases in which it was absent through disease of the pancreas. This ferment may be destroyed by various secretions, such as those of the stomach, or it may be insufficiently absorbed from the bowel. In such cases the use of pancreatic gland tissue containing active glycolytic ferment would be rendered nugatory. Or, again, glycerin or saline solution may fail to extract the glycolytic ferment from the pancreas, with the consequence that sometimes an inefficient preparation may have been used in treating diabetes by the subcutaneous method.

It is not assumed that this glycolytic ferment is exclusively manufactured in the pan-

creas, and hence the treatment would apply to cases of diabetes not necessarily of pancreatic origin. Professor v. Leyden saw a case of diabetes markedly improved by the use of the juice expressed out of the pancreas, and Blumenthal, availing himself of Leyden's suggestion, has been able to prepare the glycolytic ferment in considerable quantities. Thus under a pressure of 70 to 100 atmospheres he was able to obtain from 500 grammes of pancreas 100 to 250 cubic centimeters of fluid rich in ferment. This fluid can be kept under ice for more than ten weeks without the addition of any antiseptic. The sugar solutions used for testing this ferment must, of course, be sterile. Blumenthal mentions that alcohol does not destroy the ferment if left in contact with it for only a few hours, and that hence the ferment may be obtained in a dry form. A difficulty, however, lies in the administration of the glycolytic ferment, since it is extremely poisonous when given subcutaneously to rabbits, and dilution does not overcome these deleterious properties. The author says that the task of finding an efficient and harmless glycolytic ferment prepared either from the substance of organs or from plants must remain a problem of the future.

These researches will be watched with interest, but it must not be forgotten that Minkowski failed to benefit depancreatized dogs by the hypodermic injection of pancreatic emulsion, and it has yet to be shown that Blumenthal's juice, although active in vitro, possesses therapeutic properties even in animals.—*British Medical Journal*, Oct. 22, 1898.

CORNEAL ULCERS AND THEIR TREATMENT.

The London *Lancet* of October 22, 1898, has an article by PERCY DUNN in which he refers when speaking of this condition to two drugs—namely, chinosol and eserine—and about each of these he adds some details. With regard to chinosol, concerning the advantages of which the writer has been repeatedly asked, he believes it to be the best antiseptic agent which is now in the market, and the longer he uses it the more he prefers it and the closer does it seem to him to fulfil the requirements of an ideal preparation of the kind. There are certain reasons for doubting whether in ophthalmic surgery the principles of antisepticism are followed in the present day to the extent which their importance demands, and it is probable that the want of precision in this regard is partly due to the fact that among the multiplicity of antiseptic agents there is none which has actually found general favor with ophthalmic surgeons. The perchloride of mercury, carbolic acid, boric acid, each has its drawbacks. Each is undoubtedly useful in its way, but neither the one nor the other has ever excited sufficient enthusiasm to cause thorough antiseptic principles to prevail in the domain of ophthalmology. The importance of this matter he believes to be such that he holds sympathetic ophthalmia would be an impossible complication in eye surgery were a wound of the ciliary region to be treated from the first with every antiseptic precaution. In fulfilment of this belief he has treated within the past year several severe wounds in the dangerous zone, and in each case the eye made an excellent recovery.

The results the author has attributed to the systematic antisepticism practised by means of chinosol. The chemical name of this drug is potassium oxyquinoline sulphonate, and one of its chief advantages is the potency of its germicidal action—a fact which has been incontestably proved by bacteriological investigation. In addition, it is freely soluble in water, and thus is handy for use. Moreover, it is non-caustic, does not injure the skin of the hands, does not coagulate albumen, and is non-hygroscopic. Again, it is one of the most economical preparations in the market, for owing to its potency only weak solutions of the drug are necessary. Mixed with 1 in 20 of boric acid it forms an admirable antiseptic ointment. It might, perhaps, seem that in saying all this the writer is praising chinosol inordinately. The fact, however, is that a lengthened experience has taught him that it is an excellent preparation, possessing advantages which in time must commend it to every operating surgeon.

With respect to eserine, there is some unanimity of opinion among the authors of modern text-books on ophthalmic surgery that the drug should be avoided in the treatment of corneal ulcers. The author's experience, as will have been gathered, does not accord with that view. On the other hand, he believes that the feeling which prevails against eserine in this connection has arisen in consequence of misconception regarding its use. The great point to remember is to use it in a weak solution. The evil repute of the drug has been mainly gained by employing solutions of greater strength than

were necessary. Formerly eserine drops of the strength of four grains to an ounce of water used frequently to be prescribed, and then troublesome symptoms were nearly always induced. But it is seldom, if ever, necessary to resort to a higher strength than half a grain to an ounce solution, and for continuous instillation in cases of chronic glaucoma even a less strength than this may be satisfactorily employed.

Experience has fully demonstrated that there are certain forms of ulceration of the cornea which atropine fails to benefit, but which, on the other hand, readily yield to eserine. To define what these particular forms are is a question which has been repeatedly asked in the writer's out-patient room, and the answer may here be given as follows: All sloughing, infective, and vascular ulcers are best treated with eserine, as well as, of course, those situated at the corneal margin at which perforation is threatening. This may be regarded as a broad rule for guidance, but there remain other cases concerning which no rule can be expressed in words. The writer has in mind those cases of simple ulcer in which atropine has been used and apparently failed. In many such he has found eserine to act like a charm, the injection of the globe quickly clearing up in consequence and the ulcer rapidly beginning to show improvement. A typical case may here be mentioned. A short time ago a man wearing a shade was led into his out-patient room by his wife. The history was that he had been under treatment at an ophthalmic hospital for five weeks. There was a superficial central ulcer of each cornea with photophobia and some injection of the globes. The pupils were widely dilated from atropine. This seemed to be a case in which eserine was clearly indicated. Accordingly eserine drops (one-half grain to an ounce of water) were ordered to be instilled twice a day. At the end of the week, when the patient again presented himself, the improvement was very manifest. Two days after using the drops the patient discarded the shade and the photophobia had gone as well as the injection of the globes. Before the end of another week he had returned to his work.

Undoubtedly in cases where photophobia is troublesome eserine is of service by contracting the pupil and cutting off light to the eye, while atropine increases the trouble by dilating the pupil, thus placing the patient with his damaged cornea in a helpless condition in the presence of light beyond a low degree. It is quite possible that the utility of eserine in the treatment of corneal ulcers is partly due to the fact that the drug reduces the tension of the globe. This is only a reasonable assumption when we recollect that atropine tends to raise the tension and that an eye in which increased tension has occurred is not one in which healthy nutrition is likely to be present. By lowering the tension, then, in these cases just the difference may be made in securing the establishment of those nutritional changes necessary for the complete repair of the ulcer.

RESTORATION OF SEVERED PARTS.

The possibility of restoring severed parts, even under unfavorable circumstances, is not so generally appreciated as it should be, and attempts which might be successful are not made. Lately we published three cases in which the severed external ear was successfully replaced. In one (Dr. Brown's) the circumstances were anything but encouraging. The ear had been bitten off by a horse and was found lying in a stable yard. Neither surgical instruments nor antiseptics were available; a common needle and thread had to be used. In the other two cases (Dr. Purcell's) the surgeon adopted the ingenious plan of keeping the ear warm and endeavoring to restore the circulation by hot salt bags. We do not know of any other instances in which this has been done in the attempt to restore severed parts. To what extent it is useful it is difficult to say; at any rate, it is rational.

Several cases of union of severed finger-tips are recorded. In the *Johns Hopkins Hospital Bulletin*, October–November, 1892, Dr. Finney has published a case of successful suture of severed finger-tips after seven hours. The middle finger was cut off just below the last joint through the phalanx, the ring finger at the root of the nail. The raw surfaces were freshened and the tips were attached each by four sutures. Dr. Finney used antiseptic dressings, but not solutions, because bichloride of mercury and carbolic acid produce a thin layer of coagulation necrosis. The wounds united by first intention.

In a recent number of the *New York Medical Journal* appears an account of the following case, published in the *Louisville Medical Monthly* by Dr. John Cook Laurens: A colored man in using a heavy axe cut through his shoe and severed the metatarsal bone of the first toe through the head, completely disar-

ticulating the toe, and also cut off the second toe in front of the metatarsal joint. He was seen four hours afterwards. The shoe and sock were cut away and the second toe was found separated, whilst the first was hanging by a mere string of skin, every muscle and vessel being cut. They were united by interrupted sutures which included the tendons. A dressing of iodoform and boric acid, equal parts, was used and a splint was applied. The iodoform had to be discontinued because it proved irritating. Union by first intention occurred over more than half the wound, and there was but little pus where granulation took place. On the third day sensibility was present in both toes, and in a week the patient could move them a little. Finally they were strong, movable, and sensible, and except for a little tenderness the foot was as good as ever.—*The Lancet*, Oct. 22, 1898.

THE STERILIZATION OF CATGUT BY DRY HEAT.

In the London *Lancet* of October 22, 1898, DAUBER tells us that the following is the method of sterilizing catgut adopted by Professor Tscherning, of Copenhagen, who recently very kindly showed the writer the details observed by himself in its preparation at the Kommune Hospital in that city. The ordinary commercial catgut as it comes from the manufacturer is placed on trays in the sterilizer between sheets of cellulose paper. It is then heated for six hours consecutively, for the first hour at a temperature of 60° C., for the second and third hours at 100° C., and for the fourth, fifth, and sixth at 140° C. It is then removed, wrapped up, and closely sealed in an envelope of cellulose paper, which is again placed in another envelope of slightly larger size and similarly closed. The catgut now encased within two firmly sealed envelopes is a second time placed in the sterilizer and subjected for another two hours to a temperature of 140° C. The envelopes are placed in racks in the sterilizer, and contain various sizes of catgut labeled on the outside, some of a size for ligaturing the pedicle in ovariotomy, others for fine buried sutures or other purposes where absorption is desired within a short period. These envelopes can be taken from the sterilizer and placed in the pocket or bag of the operator, and need not be opened until the time of operation. Thus they are very handy and portable.

It is to be remembered that catgut ligatures prepared by any of the wet methods, if kept in spirit for any length of time, become hard and need more time for absorption. If, on the other hand, they are kept in an antiseptic aqueous solution they tend to become soft and lax, whereas if kept in any preparation of glycerin they are somewhat difficult to manipulate owing to their extreme slipperiness. The dry catgut is without these disadvantages. The method of raising the temperature by slow degrees prevents the catgut becoming brittle—the grease and oil in the gut being driven off gradually at the lower temperatures.

FLUORIDE OF AMMONIUM.

M. BAUDOIN (*Gazette Hebdomadaire de Médecine et de Chirurgie*, Oct. 2, 1898), in his thesis to the Faculty of Paris, relates the results obtained at the Pitie by Dr. Robin with fluoride of ammonium in the treatment of abnormal fermentations of the stomach. Fluoride of ammonium, he says, acts upon lactic, butyric, and acetic fermentations, not only by destroying the ferments, but by modifying favorably the influence of the gastric juice on the digestion of albuminoids and the refuse. Its bactericidal action is not simply transient, but appears definite, as his observations show. Fluoride of ammonium has no noxious action on the chemical ferments of the stomach. It is perfectly tolerated and has no toxic action on the organism.—*New York Medical Journal*, Nov. 12, 1898.

THE INTRACEREBRAL INJECTION OF TETANUS ANTITOXIN.

The daring procedure first successfully practiced by Quenu and Chauffard, as noted in the *Journal* of July 14, has been performed for the first time in this country, and the eighth on record, by Dr. Rambaud, of the New York Pasteur Institute, in the case of a patient in Passaic, N. J., who developed tetanus after a lacerated wound of the calf of the leg due to falling through a skylight. A large portion of the calf of one leg was torn completely away. "Antitoxic serum was injected hypodermically but without effect. As a final effort it was decided to resort to the heroic measure of trephining the skull on both sides and injecting the antitoxin directly into the anterior lobes of the brain tissue. This was accordingly done, with the result that almost immediately there was a relaxation of the muscles of the jaw.

Since then improvement has been steady and constant." Dr. Rambaud was present at the first successful operation performed by Quenu and Chauffard, in which Roux injected the antitoxin. The period of incubation of the disease is not stated. It is to be hoped that a fuller report of the case, which is one of great interest and importance, will be forthcoming.

Du Hamel (*La Médecine Moderne*, Aug. 10, 1898) also reports a case of tetanus occurring in a boy aged fifteen, produced by a pistol-shot wound between the thumb and index-finger. Later symptoms of tetanus developed and he was taken to the Pasteur Institute, where, in addition to hypodermic injections of anti-tetanic serum, three cubic centimeters of a similar fluid was injected in each side of the brain near the fissure of Rolando. At the time the injections were made the patient was in a condition of strong opisthotonos. The contractions gradually diminished, though they did not entirely disappear for some days. In three weeks he was out of the house.—*Boston Medical and Surgical Journal*, Oct. 27, 1898.

THE TREATMENT OF ANEURISM BY SUBCUTANEOUS INJECTIONS OF GELATIN.

At the meeting of the Paris Academy of Medicine held on November 8, 1898, M. Lancereaux referred to some experiments which he had made upon animals, which showed that in a very short space of time after the injection of gelatin blood drawn from the general circulation would coagulate in a few minutes. In man after an injection he had seen coagulation occur only in the aneurismal sac. The operative technique of the injection is as follows:

White gelatin in a quantity of from four to five grammes is dissolved in a seven-per-cent solution of sodium chloride in measure 1000 to 2000 cubic centimeters. The solution is placed in a flask, which is sealed and then sterilized with its contents at a temperature of 120° C. For the injection a flask of the capacity of 500 cubic centimeters is got ready, fitted with a cork and two tubes like a wash-bottle. The long tube is connected with a sterilized needle and the short tube with an india-rubber air-ball. The gelatin is liquefied in a water-bath at a temperature of 35°C. and poured into the flask, which is also kept in a water-bath. The injection is made slowly into the subcutaneous tissues and should take fifteen minutes. Thus performed it is not painful and no reaction follows. It should be repeated every six or eight days until the sac is obliterated.

M. Lancereaux said this method, if carried out with care, gave excellent results in the most desperate cases.—*Lancet*, Nov. 19, 1898.

CLINICAL OBSERVATIONS IN REGARD TO GENERAL ANESTHESIA BY THE SCHLEICH MIXTURES.

The *Medical News* of November 12, 1898, contains an article by GARRIGUES on this subject. The outcome of the author's investigation is that the Schleich mixtures are easily taken; that they may be used in all cases in which general anesthesia is not contraindicated; that anesthesia can be induced in a short time and kept up with small amounts of the fluid; that there is little accumulation of mucus, little vomiting, hardly any cyanosis; that there is no bad effect on the kidneys; that the heart is not much influenced by it, although somewhat weakened; but that there is some danger in regard to respiration, although apparently not more so than with other anesthetics; and finally, that it affects the patient much less than ether or chloroform. The writer can, therefore, recommend it for general use. Its advantages are so great that it ought at least to have a fair trial and only be condemned for cause.

ATROPINE IN DELIRIUM TREMENS.

TOUVIME (*Vratch; Archives Médicales Belgiques; Gazetta Medica Lombarda*, Sept 12), starting from the standpoint, based upon the researches of Mendel and Krukemberg, that in delirium tremens certain regions of the brain are in a state of depression, has tried various medicaments with a view to counterbalancing and dispelling the cerebral depression. He administered atropine to eleven alcoholics affected with delirium tremens, of whom five had the furious and six the calm type. In ten cases the patients became quiet shortly after a single injection and fifteen minutes later were asleep. The dose employed was one milligramme (about one-sixtieth of a grain) of sulphate of atropine subcutaneously. In one case alone, notwithstanding the administration of a larger dose of one milligramme and a half, the patient continued very restless. The injection was made in this case in the evening; in the

morning, after a cold affusion, the patient became calm. The following night he slept well.

Further, Touvime resorted to injections of atropine in a case of post-typhoid psychosis in a non-alcoholic. Two injections daily were given—namely, morning and evening—the dose being again one milligramme. The patient was completely cured in five days.

DIPHTHERIA IN LONDON.

In the *Medical Press and Circular* of October 12, 1898, DIXEY tells us it is a fact admitting of no dispute, that whatever the cause, the case mortality of diphtheria in the metropolis has undergone a steady diminution since 1894, the year of the introduction of the serum treatment. In a paper to which he has already referred, read at the Carlisle meeting of the British Medical Association in 1896, he anticipated that by the end of that year the case mortality for the twelve months would, for the first time on record, have sunk below twenty per cent. This expectation, based on the course events were then taking, was quite borne out by the result, the proportion of deaths to notification for 1896 being, as will be seen on reference to Mr. Shirley Murphy's report lately published, only 19.3 per cent in 1896, as against 20.4 per cent in 1895, and 23.6 per cent in 1894. Since the date of the materials dealt with in that report, the figures for 1897 have become available, and it is satisfactory to find that the diminution in case mortality still continues, the percentage of cases to notification for last year having sunk to the comparatively low figure of 17.7. From a table, the data for which are derived from Mr. Shirley Murphy's report, partly from the Registrar-General's weekly returns, and partly from the monthly list of notifications published in the columns of *The Lancet*, the writer has found that this diminution in case mortality has progressed in spite of fluctuations in the number of both cases and deaths. It may be added that the experience of 1898, so far as it has gone, makes it probable that a still further reduction in relative fatality may be looked for. If any one doubts that this improvement in the case mortality of diphtheria is due to the introduction of the serum treatment, the writer thinks he may fairly be called upon to say what other factor can have been at work since 1894 capable of producing the present result. The fact of the diminution in case mortality cannot be disputed, and of this the more or less general adoption of the antitoxin treatment would seem to supply the most feasible interpretation.

THE USE OF MORPHINE IN BRIGHT'S DISEASE.

SYDNEY RINGER, of London, thus concludes a paper on this topic in the *Journal of the American Medical Association* of October 8, 1898. He says that Osler writes concerning uremia, "for the restlessness and delirium morphine is indispensable. Since its recommendation by Stephen Mackenzie in uremic states some years ago, the author has used this remedy extensively and can speak of its great value in these cases. He has never seen ill effects or any tendency to coma follow." Ringer's observations entirely confirm these statements, and yet the use of morphine in Bright's disease is denounced with little less than horror by most practitioners, though they all confess that they have never tried it—that, indeed, they dare not do so. Morphine hypodermically employed is of conspicuous benefit in the shortness of breath of uremia. This may be due to different causes. With some patients the compensatory hypertrophy gives way and they suffer from cardiac dyspnea, in all respects similar to that from valvular defects with insufficient compensation, notably sleep in aortic regurgitation. The paroxysmal shortness of breath prevents sleep; on falling asleep they are soon wakened by distress of breathing. The patient is compelled to start up in bed panting for air, or the sleep may be distressed and harassed by Cheyne-Stokes breathing. This distressing condition, whether due to deficient compensation in Bright's disease, or to valvular defects, is almost invariably relieved by hypodermic injections of morphine, and several hours' refreshing sleep are secured, to the great relief and comfort of the patient, who on the following day is refreshed, and takes, digests, and assimilates his food better. Morphine can scarcely be too highly recommended in such a condition, and although it does not cure, it delays the end and greatly lessens the distress of the declining days of life.

Uremic asthma, again, yields promptly to hypodermic injections of morphine. On the other hand, persistent distress of breathing may be due to dropsy, the lung being hampered by an abundant serous effusion into the cavity of the chest. It need scarcely

be said that such a condition is not improved by the use of morphine.

The headache and sleeplessness occurring in uremic patients can generally be removed by the hypodermic injection of morphine. The writer has not given this treatment in uremic convulsions or coma, but he has largely used it in many cases of uremia with other troubles, and is sure that morphine may be given to such patients with every prospect of benefit and no risk of harm.

REPORT OF A DEATH FOLLOWING IMMEDIATELY AN OPERATION FOR NASO-PHARYNGEAL ADENOIDS UNDER CHLOROFORM, WITH REMARKS ON CHLOROFORM ANESTHESIA IN THIS OPERATION.

In concluding an article with this title in the *New York Medical Journal* of October 29, 1898, HINKEL tells us that the statistics show an exceptionally high mortality from chloroform anesthesia in the operation for the removal of lymphoid hypertrophies of the pharynx.

The observations of the Vienna pathologists show that sufferers from "adenoids" frequently belong to an abnormal constitutional type that has been found peculiarly susceptible to chloroform narcosis.

In view of the statistical and pathological data presented, the general use of chloroform in the operation for hypertrophied tonsils or nasopharyngeal adenoids is inadmissible.

TYPHOID FEVER IN INFANCY AND CHILDHOOD.

In a valuable article with this title in the *Philadelphia Medical Journal* of October 15, 1898, J. P. C. GRIFFITH tells us that treatment need occupy but little of our attention, as there is little to be said that does not apply equally well to adult life. Medicinal treatment is purely symptomatic, as in adults, and is less often needed. Rest in bed is, of course, required, no matter how much the child wishes to be up. A milk diet is to be preferred. No purgatives should be given to overcome constipation, enemata being employed in place of them. With regard to the use of the bath, careful judgment is to be employed in giving it to children. Some do not bear the plunge at all well. This is particularly true of younger children. Certainly there is, as a rule, at no period of childhood the need to use water at as low a temperature as in the case of adults. At the Children's Hospital of Philadelphia it is the custom to employ the graduated bath, placing the child in the tub with the water at a temperature of 95° and cooling it down to 85°, or occasionally, with older children, to less than this. In nearly all cases this is quite as effectual as the cool bath, and much less likely to cause excitement from fright. Very frequently, indeed, sponging answers every purpose. Even a tepid bath may sometimes answer well. It must be remembered that many children bear elevated body temperatures remarkably well, as one of the cases detailed illustrates, and that the disease in childhood is likely to run a shorter course. We can, therefore, often afford to let the fever alone. If it is true of adults it is still truer of children, that hydrotherapy is not to be used as an unalterable plan of treatment, no matter what its effect, and merely because the temperature has reached a certain figure. If it is used according to any such method, it is capable, particularly in children, of doing often far more harm than good.

ETHER NARCOSIS.

The comparison of ether with chloroform as an anesthetic continues to be a subject of interest, and, in Europe especially, contributions to the journals upon this subject are frequent and often the results of long series of observations and experiments. In this country the popularity and reputation of ether seem to be fixed, and chloroform is almost everywhere regarded with some suspicion, in spite of some of its very attractive qualities. The very generally recognized disadvantage which ether has is undoubtedly the increased secretion of mucus and saliva which occurs during its administration. In the *Archiv für Klinische Chirurgie*, B. 57, 1898, Hölscher gives some conclusions upon the action of ether, which are based upon a series of experiments upon animals. His paper is long, and his conclusions are that the ether vapor has very little irritant effect upon the bronchotracheal mucous membrane; that the tracheal râles during ether narcosis are caused by the aspiration of the secretions, salivary and mucous, from the mouth; that the affections of the air-passages following ether narcosis are caused by this aspiration; and that the increase in the flow of saliva depends largely upon local irritation by the vapor, but that central influences also play a part in this process.

It is a good thing to bear in mind that the secretions from the mouth are responsible for the tracheal râles, for it puts the prevention of the condition within the range of easy possibility, and also imposes a distinct responsibility upon the anesthetist. Of course patients are very variable in their behavior during etherization in regard to the amount of secretion and the character of the respiration, and in some it would be practically impossible to prevent the flow of some of the saliva and mucus into the trachea. It is probable, however, that it is only when the secretions reach the bronchi and their large branches that there is any great danger of pulmonary involvement. When the secretions do reach the large bronchi or the bronchioles and cause a bronchitis or a bronchopneumonia, the consequences are apt to be serious, especially in elderly or alcoholic patients.

Extreme care on the part of the anesthetist, both as to the amount of ether given and in keeping the mouth clean and the head and jaw in the correct position, is the only thing which can give us security from unpleasant experiences in a certain number of instances of the administration of this anesthetic. The dangers in the use of chloroform depend upon inherent poisonous qualities in the drug, and can be guarded against only by watching with extreme care the amount given and its effect upon the circulatory apparatus. Even with the greatest care cases will occur in which, on account of some latent cardiac trouble or of personal idiosyncrasy, alarming or fatal symptoms will develop, with very little time for satisfactory treatment.

In the case of ether, the dangers depend largely upon causes which are mechanical and can be prevented by mechanical means, leaving out, of course, any such event as the overwhelming of the patient with the drug, which should never occur and can only occur from carelessness. If the whole bronchial mucous membrane were pouring out an excess of secretion during etherization, it would be a very difficult matter to give the drug successfully; but if the secretion comes almost entirely from the mouth, it must be an easy matter to control.

In operations with tracheotomy, the presence of the tube in the trachea is irritating and causes an extra secretion of mucus in the trachea; and if this secretion becomes mucopurulent and the inflammation extends downward, the consequences are self-evident. In ordinary etherization we have not this source of irritation, and whatever sepsis is introduced must come from the mouth.—*Medical Record*, Oct. 22, 1898.

THE PREVENTION AND TREATMENT OF TRACHOMA AT THE HOUSE OF REFUGE.

From a large experience in an epidemic of trachoma GILFILLAN concludes that it is best to divide trachoma, clinically, into three forms, or classes:

The mild cases, where only the lower lids are involved. In these cases the patients are often not aware that they have any trouble with their eyes. On examination one finds a dozen or more granules on the conjunctiva of the lower lid. There is slight lacrimation, but no other symptom.

Ordinary cases, where both the upper and the lower lids are involved. In these the appearance of the conjunctival surface of the lids is like a nutmeg grater, being studded irregularly with granules. Lacrimation and sticking of the eyelids together in the morning, besides a rough feeling of the eyes as if something were in them, are present in these cases.

In chronic cases the granules have broken down, leaving the conjunctiva in appearance red, velvety, and succulent. Lacrimation and photophobia are marked symptoms. Oftentimes there is a growth of blood-vessels on the cornea.

Of his three hundred and twenty-five cases of trachoma, at least a hundred and fifty were of the first class. Many of them were very mild, the disease having only just begun. Every night and morning half a dozen drops of the following solution was instilled into the eyes in this class of cases:

℞ Tannic acid, ʒ j;
Glycerin, f ʒ j.
M. S.: Eye drops. Use twice a day.

Three times a week an application of sulphate of copper crystal (bluestone) was used on the everted lids. Often this was replaced for a time by the use of alum crystal (whitestone). All of this class did well and soon recovered. To show how fast they were discharged cured he appends a statement. When necessary he used Knapp's roller forceps.

After this operation an application was made twice a day with a camel's-hair brush to the everted lids of a 1-to-6000 bichloride solution. This was kept up for three weeks. Three times a week the application of the bluestone was also made.

Most of these operative cases are cured in from three to six weeks. Sometimes it is necessary to operate a second time in cases where there are large masses of granules. As a rule, the prognosis in the first and second class of cases is good.

INDICATIONS FOR THE APPLICATION OF THE OBSTETRICAL FORCEPS AT THE PELVIC OUTLET.

In the *New York Medical Journal* of October 29, 1898, ROOT tells us that the time to apply the obstetrical forceps at the pelvic outlet cannot be governed by fixed rules. This must rest with the operator, and requires a nicety of judgment gained only by careful study of each individual case. In skilled hands the application of the forceps is better made too early, or earlier than is absolutely necessary, than too late, for too late means disaster to mother and child. It is not possible to draw distinct lines for indications, but for convenience of study we may divide them into five groups:

The fault lies wholly with the *vis a tergo;* the head is more or less movable, and there exists no obstruction in front of the head: (*a*) the pains or uterine contractions are inefficient; (*b*) the umbilical cord is short.

Cases where the anteroposterior diameter of the head, though presenting, fails to engage in the corresponding diameter of the outlet, the head being more or less movable. Large head with (*a*) occiput anteriorly; (*b*) occiput posteriorly.

To produce complete flexion in a partially extended head that cannot be flexed by the expulsive forces without undue duration of labor or by the hands of the accoucheur, the head being more or less firmly fixed.

To shorten the second stage of labor for the relief of maternal suffering.

For the immediate relief of the child.

When uterine contractions are inefficient there is a want of expulsive force exerted upon the fetus. The cause may rest with the uterus itself; it may arise from the delicate muscular and nervous organization of the patient; from impaired health, as in cases of albuminuria, or wasting disease; and from weariness produced by a prolonged first stage.

When there is a short cord or a cord shortened by coils about the neck. In this group of cases the head moves forward and recedes without material advancement. The to-and-fro movement of the head is especially marked in cases of short cord. The recession of the head differs in character from recession following relaxation of a uterine contraction or of expulsive efforts. It has more the appearance of being pulled back, and the shorter the cord the more marked is this characteristic, which may be considered diagnostic. The cord shortened by coils about the neck will produce a similar effect. When the conditions under (*a*) and (*b*) exist, the natural rhythm of the pains is soon disturbed or destroyed. The pains become short in duration and "choppy" in character. The expulsive efforts are unsteady and ineffectual.

It is worse than folly to allow these conditions to exist longer than is necessary to determine their existence.

In this group of cases the application of the forceps is easy, and extraction should be attended with little or no danger or added suffering to the mother, except in cases of short cord. Hence the danger is chiefly to the child. The cord may be torn from the umbilical ring or the placenta may be prematurely loosened. This danger is not light, and may be obviated to a certain extent if a skilled assistant will use abdominal pressure over the uterus to facilitate its descent with its contents into the pelvis.

In this group the difficulty lies in front of the head and not behind it. There exists some disproportion between the head and the birth canal, due to oversize or faulty position of the head or to undersize of the outlet.

The pains are strong and the expulsive efforts are well directed. But all efforts meet with defeat because of the opposing diameters of the bony outlet. The sphere of their circumference is filled by the presenting portion of the head when advanced by a contraction. The head fills the space in proportion to the compression it has undergone.

The caput succedaneum extends beyond the tuber ischii and protrudes from the vaginal orifice. Each effort at expulsion will seem to promise delivery of the head, but examination will find the parietal bosses behind the tuber ischii and the inion behind the symphysis pubis. The anteroposterior diameter of the head that is presenting is too long to allow the inion to pass from under the pubic arch or over the perineum if it is posterior. During the absence of pain the head recedes—freely if the cavity of the pelvis is roomy, and less so if not.

The movement of pseudoextension ob-

served when the head is pushed down by a contraction, and which so often deceives the inexperienced or careless into believing that the head is advancing, is due to the head revolving slightly upon its transverse diameter in the effort made to pass the outlet. The gradual increase in the size of the caput succedaneum adds to the deceptive promise of delivery made to the disheartened patient.

Vigorous efforts, voluntary and involuntary, will continue according to the strength and endurance of the patient, but they will sooner or later assume the characteristic behavior of expulsive efforts that meet with obstruction. If relief is not given the patient begins to show signs of exhaustion. The uterus becomes irritable and sensitive to the touch; pains are excruciatingly painful and "choppy," overthrowing the equipoise of the patient's nervous system. The soft parts become swollen, contused, and edematous, while the child dies or is born *in extremis.*

No case should be allowed to reach this pitiable and dangerous stage before relief is given. The diagnosis should be made early. The changed character of the pains, and the behavior of the patient while under their influence, should give early warning to the accoucheur of what lies before him. The forceps should be applied and delivery effected before signs of exhaustion begin. Greater traction force is needed here than in the first group, with proportionately greater compression of the head.

The integrity of the perineum and the lower third of the vagina are greatly endangered; laceration is more than likely to occur, and is inevitable if the inion is situated posteriorly, unless the head is very small.

To produce flexion of a partially extended head that is more or less firmly fixed. The conditions that give rise to this form of dystocia usually occur in the cavity of the pelvis.

The cases the author includes in this group are those where rotation has taken place or is nearly completed, so that the application of the forceps to the sides of the pelvis applies them to the sides of the head. This form of arrested head usually occurs just within the outlet. It is chiefly due to a hand of the fetus falling under the chin, or some other displacement of an arm that prevents flexion. The fetus is crowded into the pelvis by the uterine contractions, and by retractions when the fruit-water is spent. The forceps applied, traction is made horizontally until the head reaches the floor of the pelvis and presents well at the outlet.

The advance of the head gives the chin a chance to escape the obstructing hand or arm, when flexion is readily accomplished by lowering the occiput if in front and raising it if posteriorly. After flexion is produced delivery of the head in anterior positions is easy, with or without the further use of the forceps.

The diagnosis of this difficulty is not easily made, and must be largely presumptive.

In cases where the diagnosis may be reasonably assumed, the inlet is wide and the cavity fairly roomy. The adjustment of the forceps blades points to the difficulty. One blade will slip easily into place, while its fellow will meet with an obstruction that prevents it from reaching home. This can be due to the tip of the advancing blade coming in contact with the shoulder of the same side that has been driven into the pelvis and passed the side of the face. The projecting hand fills the groove between the shoulder and the side of the face. It is then difficult to insinuate the tip of the blade between the shoulder and the side of the face, but when this is done the hand or arm is pushed away and the blade slips home. Difficulty in adjusting the tip of one blade, followed by ready flexion and delivery, should point to a displaced hand or arm.

The forceps is indicated for the relief of maternal suffering. The greatest danger from its use for this purpose arises from the resistance of the perineum terminating in its rupture. Whether the cause lies in the *vis a tergo*, the *vis a fronte*, as supplied by the forceps, or in both combined, the too rapid advancement of the fetal head endangers the perineum. In this group of cases the *vis a tergo* is efficient, the patient is in good condition; there is no obstruction offered the advancing head except that of a slowly dilating perineum. But the patient suffers and frets under the burden of pain laid upon her. To relieve her the forceps is applied; but it must be remembered that traction by means of the forceps lends added power to the force behind. If these combined forces are out of proportion to the dilatation of the soft parts, rupture is inevitable and unnecessary damage is done.

If the time for applying the forceps is rightly chosen and the forces in hand are well controlled, we may expect the happiest results. We may not only escape a possible rupture from bad use of the forceps, but may prevent a probable rupture if the case had been left to spontaneous delivery.

The period of suffering may be shortened

from half an hour to two hours with absolute safety and comfort to both mother and child. At no time, other things being equal, should this boon be denied the patient.

A forceps operation is usually undertaken for the greater safety of mother and child. In this group we choose to deal with those cases in which the child alone is considered: (*a*) When the child is debilitated and small and is not likely to withstand the vicissitudes of labor, though of average duration; (*b*) when the mother gives the history of having borne children that have died during labor, pending spontaneous delivery, or soon after; (*c*) when the head has been upon the perineum, under pressure long enough to jeopardize, or better, before it jeopardizes, the life of the child; (*d*) in cases of hemorrhage *in partu*. An escape of blood during an intermission of pain and recession of the head points to a premature separation of the placenta, or laceration in some portion of the birth canal. When this occurs, little time should be lost in determining the site of the hemorrhage. If not found in a laceration, we must act upon the supposition that the hemorrhage is placental and apply the forceps. The integrity of the perineum should be of secondary consideration, for a wound well repaired will heal more easily than life can be restored to the child.

INJURIES OF THE GALL-DUCTS.

PORTER (*American Journal of Obstetrics and Diseases of Women and Children*, November, 1898) deals in his communication only with the cystic right and left hepatic and common duct, and more especially with the common duct because its great length and less protected position render injuries to it more frequent than injuries to the hepatic ducts, while injuries to the cystic duct present no features differing in practical import from injuries of the gall-bladder.

The general direction of the common duct is downward along the right border of the lesser omentum to the inner side of the descending portion of the duodenum, where it empties by piercing the walls of the gut obliquely, thus making the opening valve-like in action. Just before piercing the gut the common duct receives the duct from the pancreas.

By passing the finger from left to right along the lesser omentum until the right margin is reached, then hooking the finger under this margin through the foramen of Winslow, the common duct may be lifted forward. The common duct lies in front of the vena portæ, to the right of the hepatic artery, and is crossed in front by the pyloric and gastroduodenal arteries. The superior pancreatico-duodenal branch of the latter artery lies in close relation to the right side of the lower two-thirds of the common duct. It is important that the changes in the position of the liver and the consequent changes in the position, direction, and relations of the ducts, due to relaxation of the abdominal walls, etc., be borne in mind.

Injury to the hepatic ducts is usually accompanied by injury to the liver also. This does not apply, of course, to those cases in which the injury is produced, either intentionally or by accident, in the course of operations. One would expect injury to the common duct to be complicated usually by hemorrhage, owing to the close relation it bears to numerous large blood-vessels; but this does not seem to be the fact, judging from the few cases reported. This may be accounted for by the relatively greater power of resistance of the blood-vessel walls.

No case of rupture of the gall-bladder or gall-ducts without penetration of the abdomen is reported in the "Medical and Surgical History of the War of the Rebellion." The cases reported show the most frequent cause to be forces which act in a crushing manner, such as a blow on the abdomen or the passage of a wagon wheel over it. The presence of gall-stones predisposes to rupture of the gall-ducts from trauma, and their presence may cause ulceration and perforation.

The symptoms, mentioned in the order in which they usually occur, are pain, shock, ascites, acholia, jaundice, and other symptoms of cholemia, peritonitis, and inanition. Pain is usually severe, and most marked in the right hypochondrium. The pain may, however, be severe in other regions of the abdomen without there being any signs of injury to account for it, and slight or entirely absent in the region of the ducts.

Shock is generally pronounced and the reaction therefrom rather slow. So-called secondary shock or unduly prolonged shock means hemorrhage and demands immediate celiotomy. It is possible for the shock to prove fatal in these cases through injury to the solar plexus.

In cases where the lesion is of such a nature as to divert nearly or quite all of the bile from the intestine into the cavity of the

peritoneum, ascites develops rapidly. Estimating the daily quantity of bile at two and a half pounds, as given by Flint, we can appreciate the diagnostic importance of this symptom. In a case of rupture of the gall-bladder reported in Holmes' "System of Surgery" (vol. ii, p. 419), marked distention of the abdomen was noted two days after the injury. In the writer's own case it was not noticed by the attending physician until about a week after the injury, but it recurred to the extent of ten pints in four days after tapping. The ascites is usually general, but may be localized by the formation of adhesions or by the filling of the lesser cavity of the peritoneum. This latter would be more likely to occur in cases of rupture of the common duct at the margin of the foramen of Winslow. Filling of the lesser cavity of the peritoneum with bile would produce an ascites of the upper abdomen, which would soon become general unless the foramen of Winslow were closed. The ascites may be general at first, and, after tapping, become localized.

The degree of acholia will depend upon the completeness of the diversion of the bile from the intestine, and is therefore incomplete in rupture of the cystic duct, of either of the hepatic ducts, and in small perforations of the common duct. This is also true of jaundice, and, indeed, of all symptoms which are due either to the absorption of the excretory elements of the bile or to the absence from the intestinal canal of the secretory elements of this fluid.

Jaundice is more likely to occur in those cases wherein the escape of the bile into the peritoneal cavity is preceded by obstruction of the bile ducts, and in those cases in which the bile within the peritoneal cavity is subjected to pressure. Jaundice is not a constant symptom of escape of bile into the peritoneal cavity.

If the ducts are healthy at the time of injury the principal source of infection is the bowel, through regurgitation along the duct. Other things being equal, the danger of infection from this source increases in proportion as the injury approximates the bowel. However, the valve-like character of the opening of the duct into the bowel renders infection from this source less likely than one might on first thought suppose.

Bile, if aseptic, will not produce peritonitis. Practical experience has shown that the fear surgeons formerly entertained of bile within the peritoneal cavity is unfounded. Lane reports a case of rupture of the gall-bladder, which recovered after operation, in which for five weeks a considerable quantity of bile was present in the peritoneal cavity.

In case the bile is completely diverted and the patient lives long enough, symptoms of inanition will develop.

Fatty stools seldom occur. This condition of the stools, together with other signs and symptoms of faulty digestion, would no doubt be more likely to arise in cases where the rupture occurs close to the opening of the pancreatic duct, as in such cases there might be escape of the pancreatic juice into the abdomen.

Mental hebetude, peevishness, subnormal temperature, and slow pulse are usually present. If peritonitis supervenes the pulse will be quickened and the temperature will rise, but not in the same degree as would occur in an equally severe peritonitis from other causes.

Marked infection may be present with slight or no elevation of the temperature and very little acceleration of the pulse. This influence of cholemia on the pulse-rate and temperature in the presence of infection is an important clinical fact.

A satisfactory diagnosis cannot be made without opening the abdomen. Exploratory celiotomy should be promptly done in all cases of injury to the abdomen in which the symptoms are such as to arouse any suspicion of serious injury to the abdominal contents.

Cholemia, acholia, and infection are the conditions to be avoided or remedied. Perfect drainage will obviate the first and last, but to obviate the danger arising from acholia we must devise some means by which at least some bile may get into the intestinal canal.

Cystectomy with closure of the duodenal end is the method of choice in cases of rupture of the cystic duct. If accessible the rent may be closed by sutures. In rupture of either hepatic duct it may be possible to close the rent by sutures; but in most, if not all, cases of complete division of the duct the use of gauze drainage or combined gauze and tubular drainage will be the only feasible method of treatment. To this it would perhaps be well to add ligature of the duct on the duodenal side of the rent. This will lead to a permanent biliary fistula if the patient survives, but the danger from acholia would perhaps not be great, and we can scarcely hope for a reestablishment of the flow of bile

through the normal channel under these circumstances. If the perforation be small, it may close and the patient recover if drainage be established. Landerer's case recovered under repeated punctures. Kernes' case recovered after the abdomen was opened, dried, and then closed without drainage.

Injuries of the common duct, when they result in complete diversion of the bile from the intestine, are inevitably fatal, unless by some means the diversion be overcome. That large quantities of bile may be discharged through abdominal fistulæ for an indefinite period without harm to the individual is, of course, a matter of frequent experience, but the writer knows of no case which disproves the statement that complete diversion of the bile from the intestinal canal is, if not remedied, fatal. Small openings in the common duct may be sutured, or, if this is not feasible, they may be treated with drainage, in the hope that the opening will close spontaneously.

When, from an examination through an abdominal incision or from an examination of the stools, it is learned that no bile is flowing into the bowel, no time should be lost in reestablishing this flow. End-to-end approximation of a completely divided common duct by suture or other means is possible, perhaps, in some cases.

If both ends of the divided duct can be found, the best method to adopt would be ligature of the bowel end and implantation of the liver end into the duodenum. A method less ideal, no doubt, but more often practical, would be closure of both ends of the divided duct, in case they can be readily found, and cholecystenterostomy. In case the injury to the duct cannot be easily found, and the condition of the patient is such as to demand that the operation be done quickly, it would be best, perhaps, to do a cholecystenterostomy and use a gauze tampon for the double purpose of establishing drainage and encouraging the flow of bile through the newly formed channel, and thus hasten the closure of the rent in the duct. If haste is not essential the union of the gut and gall-bladder may be made by suture; but, in many cases, to save time is to save life, and for this reason the use of the Murphy button is advised in all cases where speed is essential. In cholecystenterostomy with closure of the common duct it is important that the anastomosis be made as high in the bowel as is possible, in order to avoid fatal or serious acholia.

Cases will present themselves now and again in such deplorable condition that radical operation will be out of the question. Under such circumstances the operation should comprise the doing, in as quick and simple a way as is possible, of those things only which are immediately necessary to save life, such as the establishment of drainage when life is threatened by peritonitis, or the use of gauze packing for hemorrhage. The immediate danger having been averted by these measures, a radical operation may be done later on when the patient is better able to stand it.

Theoretically one would seem warranted in expecting much relief from the symptoms due to the absence of bile from the intestines from the administration of inspissated ox-gall and salol, or other intestinal antiseptic, together with the use of predigested (emulsified) fats; but in the reported case the use of salol and ox-gall seemed without effect. No emulsified fats were given, as no fat was seen in the stools.

In conclusion the author emphasizes the following points:

Fatal inanition may be caused by an injury which results in a complete diversion of the bile from the intestines.

Jaundice may be absent though a large quantity of bile is thrown into the peritoneal cavity.

Cholemia and inanition combined may keep the pulse-rate and temperature normal, or even below, in the presence of marked asepsis. Acting singly these conditions have the same effect, but in lesser degree.

Jaundice is not always present in cholemia.

Porter concedes that the truth of this last proposition may be open to question, but the burden of proof rests with those who deny it. The other conclusions are, in his opinion, supported by evidence that is incontrovertible.

A SIMPLE TREATMENT DIRECTED TO THE RELIEF OF THE LOCAL CONGESTION INCIDENT TO PROSTATIC HYPERTROPHY.

NOGUES (*Annales des Organes Génito-Urinaires*, quoted by *Monatshefte für Praktische Dermatologie*, Bd. 27, No. 8), after stating the well known fact that congestion of the prostate rather than absolute enlargement of this gland is often responsible for obstruction to the passage of the urine, urges as a means of combating this congestion regulation of

the circulation, systematic evacuation of the bladder, and abdominal massage. The results of this latter procedure were extremely satisfactory, especially in the early stages of prostatic enlargement and urinary obstruction. The acts of micturition became painless and were much less frequent, especially during the night. Even in cases of complete retention massage seemed serviceable, since the urine became clearer and there was less bleeding.

ESSENTIAL RENAL HEMATURIA.

DEBAIRIEUX (*Annales des Société Belge de Chir.; Annales des Organes Génito-Urin.*, No. 9, 1898), stimulated thereto by a case of rebellious hematuria dependent upon a chronic unilateral nephritis reported by Keersmaecker, contributes the interesting details of a woman twenty years old who in April of 1895 presented herself with a history of having suffered from hematuria for six months. This began with an attack of grippe, and was accompanied by pain in the left side of the belly, the iliac fossa, the lumbar region. This pain was habitual, though not constant, and was sometimes severe enough to prevent sleep. Occasionally it presented the features of true nephritic colic, running along the course of the ureter toward the labia majora, being accompanied by nausea and vomiting. At times this was so intense as to cause the patient to faint.

There were not the classical symptoms of stone, there were no pus cells, nor tube casts in the urine, nor crystals of any kind. The reaction was faintly acid and the albumen was exactly proportionate to the quantity of blood. The urine was sterile; there was no polyuria; occasionally perfectly limpid urine would be passed—once it remained so for two days.

The renal origin of the blood was decided upon because of the absence of all vesical symptoms and the presence of pain and tenderness in the region of the kidney. The urine passed in three glasses showed an equal quantity of blood in each. On irrigating the bladder the fluid returned without trace of blood. After having irrigated the bladder and removed the catheter, bloody urine could be drawn five minutes after.

Diagnosis rested between neoplasm and calculus. It was decidedly in favor of the latter. On operation the kidney was found normal in appearance, dimensions, and position. The kidney was split and nothing abnormal was found. The kidney was sewed and the wound closed. From that time bleeding ceased, and the patient has been perfectly well ever since.

The second case bled for five months, and was opened by Broca. The kidney was found healthy and was sutured in position. The bleeding ceased immediately.

The third case, having suffered in 1878 from symptoms of nephritis, passed bloody urine from that epoch until 1886, when Sabattier, believing a calculus was present, practiced nephrectomy. The kidney removed was perfectly healthy. Hematuria ceased after operation and the patient was well more than a year later.

Another patient suffered from hematuria in December of 1887. This was followed by apparent cure, but in 1889 the hematuria recurred and was almost continuous. Because of the history Senator diagnosed hemophilia; Nitze demonstrated that the blood came from the right ureter. In 1890 Sonnenberg practiced nephrectomy. Histological examination showed only very small isolated portions of the kidney affected with interstitial nephritis. Hemorrhage ceased after the second day following operation. Seven months later the patient was still well.

These four cases were all women.

The fifth case, that of a man aged fifty, suffered from abundant hematuria after taking a cold drink; at first intermittent and relieved by rest, it finally became continuous and exhausting. A slight pain in the left side furnished the indications for operation. Nephrectomy was practiced. The left kidney, though anemic, was perfectly healthy. The patient got well.

The sixth patient was a sailor, who suffered over twelve years from hematuria associated with pain in the left kidney. Lauenstein performed pyelotomy, hoping to find a stone, but in this he was disappointed. The patient recovered and had no recurrence of bleeding.

The seventh case suffered over five years from nephritic colic of the right side and hematuria. For two years it had become continuous. Abbe practiced nephrotomy, introduced his finger into the pelvis, and found only the extremity of one pyramid covered by a light gritty deposit, which was scraped away. After the fourth day hematuria ceased and never recurred. Pain was also relieved.

Many other cases are reported of both nephrotomy and nephrectomy, all failing to show any adequate lesion in the kidney.

The bleeding seems to be dependent upon

an obscure anatomical condition, one which cannot even be detected by minute microscopic study of sections of the kidney substance. The condition has been termed essential renal hematuria or renal hemophilia. The characteristic of this form of hematuria is that it is associated with no demonstrable anatomical lesion, that it is refractory to all medication, and that it disappears either spontaneously or as a sequel of an operation the efficacy of which cannot be clearly explained.

The theory that the bleeding is due to an angioneurosis finds its support in the fact that this condition is much more frequent in women than in men; also operations other than those performed on the kidneys are followed by a cure of the affection. Thus Passet and Picquet, having through a mistaken diagnosis performed hypogastric cystotomy, cured the patient.

As to the treatment of this affection nephrotomy is the operation of choice, followed by nephrectomy if the kidney is markedly diseased.

THE RADICAL TREATMENT OF PROSTATIC HYPERTROPHY.

FULLER (*Medical Record*, Nov. 19, 1898) thus describes his operation: The patient is placed flat on his back, neither the Trendelenburg position nor the Petersen bag being commonly found necessary. The bladder is carefully washed out, and then left moderately distended, to the extent of from eight to twelve ounces. The next step is to open the bladder suprapubically. The forefinger of the left hand is then introduced into the bladder, the location and extent of the prostatic obstruction are determined, and the vesical opening of the urethra is located. In the right hand is grasped a pair of serrated-edged scissors with a long handle. These scissors are slipped along the left forefinger to the urethral opening, and are made to cut through the bladder wall in that region. The cut extends from the lower margin of the internal vesical opening of the urethra backward for an inch to an inch and one-half. The blades of the scissors being rough and serrated, make an incision which bleeds but little. Then one of the forefingers, whichever the operator may find the more convenient, is slipped through the vesical hole made by the serrated scissors, while at the same time the fist of the other hand makes firm counter-pressure against the perineum. By means of this counter-pressure the prostatic growth is brought well into the reach of the forefinger, which is employed all this time in enucleating the prostatic obstruction, *en masse* or piece by piece, as the case may be. The enucleation can be easily and speedily accomplished in this manner, and should not be desisted from until all the lateral and median hypertrophies, as well as all hypertrophies along the line of the prostatic urethra, have been removed. The vesical walls at the base, as elsewhere, are very elastic and dilatable, so that it will be found that the little cut made through the bottom of the bladder will be large enough to admit of the passage through it of the enucleated prostate.

A perineal section is then made, and a large-sized (No. 26 American) soft-rubber tube is passed through the perineal cut, and the cut through which the prostate was enucleated, into the bladder. After this, hot-water irrigation is employed for some minutes, to wash out blood-clots and to stop oozing. Then the suprapubic wound is closed by a deep layer of catgut sutures, which include the bladder wall, and by a more superficial layer of silkworm-gut (Florentine) sutures. About in the middle of the cut the catgut stitch is omitted and a deep Florentine-gut suture is taken, which includes the vesical wall and the whole extent of the lateral abdominal wall. This suture, however, is not tied at the time of operation, thus allowing a rubber suprapubic drainage tube to remain temporarily in position. At the end of four or five days this suprapubic drain may in most instances be removed; then this last Florentine ligature can be tied, thus entirely closing the suprapubic cut. It is best not to remove these Florentine sutures till after the patient is up and about, as without their firm support there is oftentimes a tendency for the soft scar tissue of the wound to give, thus allowing a considerable spreading of the abdominal structures.

Some hypertrophies will be encountered which do not admit of enucleation by the finger in the manner described, owing to the abundance and denseness of the fibrous tissue helping to constitute them. In such instances the writer has found it necessary to introduce prostatectomy forceps through the hole made in the vesical floor, and, after seizing a piece of the hypertrophy, to twist it free. If sufficient tissue is not removed by the first twisting, the instrument should be reintroduced, and so on, till all obstruction has been taken away. On one or two

occasions the writer has encountered tissue so dense and adherent to the vesical wall that the forceps and the twisting process have seemed dangerous, owing to the force they would necessitate. In such unusual cases the tissue should be cut away, and for that purpose the writer recommends Jessop's prostatic scissors. He also favors two suprapubic drainage tubes instead of one, following the example set by Guyon in the after-treatment of cases in which vesical growths have been removed suprapubically.

In order to save time, and also because he finds them unnecessary, the writer has discarded the layer of catgut sutures and now employs simply the one layer of silkworm-gut to close the wound. One of these sutures after passing through all the abdominal layers includes also the bladder wall at the upper portion of the vesical incision, while another one in like manner includes it at the lower portion of the incision. In this manner the vesical is kept up in close apposition to the abdominal wall, so that there may be no escape of extravasated fluid into the space of Retzius. In doing this operation the author very rarely ties a blood-vessel, thereby saving considerable time. In order to be able to perform prostatectomy of this description with neatness and despatch, a surgeon should have good control of his forefinger and be possessed of some strength of wrist and forearm.

The writer finds the records of twenty-seven personal cases of prostatectomy, most of which were subjected to his method. These cases he has divided into two classes: those in which all the larger surface arteries were felt to be markedly atheromatous, and those in which such changes were absent or not prominently evident.

Five of the writer's cases come under the first heading, and twenty-two under the second.

Out of the five patients of the first class three died after operation. One of them, who was apparently progressing favorably, experienced a severe seizure of cerebral apoplexy on the third day. In another, the post-mortem showed extensive postoperative hemorrhage into the space of Retzius and underneath the peritoneum, occasioned by the calcareous condition of the blood-vessels. The other died suddenly on the fifth day, perhaps of thrombosis.

Out of the twenty-two cases of the other class two died—one of suppression and shock, and the other of peritoneal symptoms, but of just what nature, in the absence of autopsy he could not determine. Many of these latter cases were very bad apparent risks. Some of them were operated upon in emergency, it being impossible to relieve the bladder except by aspiration. Most of them were suffering also from the effects of vesical infection, and in a good percentage of these cases the infection had ascended to the renal pelvis.

Two cases, both earlier ones, passed from Fuller's view with suprapubic fistulæ. They were careless individuals from the lower social strata. He does not feel that such an after-lesion need be reckoned upon as at all likely or necessary, provided a patient cooperates with the surgeon. A postoperative inconvenience sometimes complained of, and which is usually of temporary duration, is the loss of a drachm or so of urine when there is some vesical pressure as a result of bodily activity. In one instance vesical incontinence persisted after operation, due, he is inclined to think, to chronic sclerosal perivesical inflammation. As a result of his experience he would avoid operating on individuals of the first class except for the relief of suffering, since the chance is against their recovery. The value of the operation, with reference to the other class, speaks for itself.

THE OPERATIVE TREATMENT OF CLEFT PALATE.

OWEN (*British Medical Journal*, Nov. 5, 1898) says that the observations in connection with the operative treatment of cleft palate arrange themselves under three headings: (1) Before the operation; (2) the operation; and (3) after the operation.

The operation not being one of immediate urgency the surgeon can choose his time for it, making such preparations as will, if efficiently carried out, add greatly to the prospects of securing a completely successful result.

Thus, if the child is brought looking ill or poor, if it is found on inquiry to be liable to severe attacks of diarrhea, or to cough, or to vomiting, the operation must be put off and attention directed towards procuring the general and particular improvement of the child. If the tongue be foul and coated, a change of air and diet should be ordered, and the child put upon a course of rhubarb and soda mixture, which has a most beneficial effect in the treatment of chronic dyspepsia in children. Particular attention

should always be paid to the teeth. Every carious tooth should be extracted, or cleaned and filled, and to diminish to the utmost the risk of the line of the suture in the palate becoming infected from the pathogenic microorganisms the mouth and gums should be for some days washed over with a saturated lotion of boracic acid with glycerin.

No one would propose the performance of a plastic operation upon the hand, for instance, until the area of operation and its neighborhood had been rendered aseptic, and although it is not practicable to effect as much in regard to the mouth, still the surgeon should accomplish his utmost in that direction. It is usually found that there is something for the dental surgeon to do before the mouth is in a condition to invite the performance of a staphylorrhaphy.

With regard to the important matter of the presence of pharyngeal adenoids and of enlarged tonsils, it is sometimes advised that the operation upon the palate should precede that upon the tonsils and adenoids, but such advice is not sound. The child has hitherto been in the habit of breathing through a wide palatine cleft, and if this is suddenly closed by operation provision should surely have been made for securing a passage for the air as free as possible; and we know how seriously the airway may be blocked by tonsillar and adenoid disease. The surgeon should amputate enlarged tonsils at least ten days before dealing with the palate, and if, on doing so, he cuts across a septic or tuberculous focus, as often happens, he had better wait a little longer still before dealing with the palate; and when adenoids are conspicuous through the cleft, it is surely better that they should be scraped away before operating on the palate.

Just before the operation on the palate the nurse should give a beef-tea enema with a little brandy.

The anesthetic is chloroform, administered partly by a mask and partly by a Junker's apparatus, but the child should not be too deeply under the anesthetic. It surely must be an anxious time for the anesthetist when the operator keeps on insisting that the child is not sufficiently comatose. The child should now and then show signs of "coming round."

When the child is fairly under the anesthetic a strong suture is passed through the tip of the tongue, which is well pulled out before introducing the gag; in this way it can best be kept from rolling back against the soft palate when the hindmost part of the cleft is being dealt with. The child is then brought up to the end of the table and its head allowed to hang back so that the blood may have but slight chance of finding its way into the larynx.

As soon as the edges of the cleft have been denuded, an incision is made along the inner side of the alveolar process, and as this is apt to be followed by a good deal of bleeding it is well to pause here for a few moments and make firm pressure with a sponge so as to keep the bleeding under control. Then the raspatory is introduced, and the mucoperiosteal flaps are raised. But, as a rule, they cannot be shifted towards the middle line, and be sutured there without tension, until the alveolar incisions have been prolonged backwards into the soft palate. These incisions, which should be quite free, traverse the attachments of the levator and tensor palati, as well as that of the palatopharyngeus. Then the attachment of the aponeurosis of the velum to the posterior border of the hard palate is divided with the curved scissors and the sutures are inserted. For the sutures Owen uses almost entirely silver wire, supplemented in some cases with horsehair. The wire sutures are inserted by a modification of Smith's needle, which is also made by Weiss. In the case of a complete cleft he inserts about ten or a dozen sutures.

A point of great practical importance is to have the lateral incisions made very freely. Indeed, the author makes them so free that, as the palate is being sutured, he uses them for the introduction of small pieces of sponge for removing blood from the front of the nasopharynx, and after the operation they together seem to be as wide as was the original cleft; insomuch that onlookers have sometimes asked if there is no fear of the flaps sloughing, or of the incisions failing to be obliterated. In neither of these respects, however, has there been any trouble.

The operation as thus described is extremely simple. It demands the use of no rectangular knives for the separation of the mucoperiosteum, and the expansions of the muscles into the soft palate are divided by a simple, straight incision. One great point in the operation is to have the edges of the palatine flaps adjusted without any tension whatever. The effect of tension after any surgical operation is apt to be disastrous.

Probably the child will vomit when he is "coming round," and if he does this just be-

fore he is moved from the table, so much the better. The act of vomiting does not in the least interfere with the line of suturing, as the writer has often assured himself, though, of course, if vomiting persists it may be prejudicial. The nurse must be told not to be surprised if the fluid ejected from the stomach is blackened by blood which has been swallowed. When the child is put back to bed his head should be slightly raised on a pillow, with the face turned down so that the blood-stained saliva may escape from the mouth and fall into some absorbent material.

Whether the mouth spray is used or not, a case every now and then goes wrong after operation. The child looks ill; his temperature runs up a degree or two; his tongue is coated; his breath is foul; the line of the palatine suture becomes swollen and unhealthy; and a thick, stringy, mucopurulent discharge collects about the roof of the mouth. The appearances are ominous and unmistakable. What has happened is that staphylococci have taken possession of the damaged tissues, and undergoing cultivation are spoiling or completely wrecking the surgeon's handiwork. The writer has at the present time an operation case of this sort in the Hospital for Sick Children. It was in a girl, with a complete cleft (and rather a wide one) of the soft, and of the whole of the hard, palate. Mr. Templeton took a thrust cultivation from it on the seventh day, and found the gelatin completely liquefied by vigorous staphylococci in less than thirty-six hours.

To say that Owen allowed the infective disease to run its course feebly expresses the truth; he could not stop it. But a fortnight after the original operation, when the sundered and swollen edges of the cleft began to look bright and clean, he had the child again under chloroform, and, having freshened up the marginal granulations, he brought the edges of the flaps together once more, and secured them by wire sutures, which he inserted quite wide of the cleft. To get the edges together without tension he introduced the raspatory once more by the lateral incisions, and again freely raised the mucoperiosteal flaps. The case has done extremely well, and it seems to promise as good a result as if the edges had adhered by primary union. This, indeed, is the chief point of his paper, and he regards it as one of great practical importance.

There is no factor so prejudicial to prompt union after staphylorrhaphy as septic infection, but after a child has undergone this infection we should probably be right in concluding that he could not undergo a second attack; that he has acquired by it a complete immunity.

THE COMPLICATIONS OF OPERATION FOR THE REMOVAL OF THE APPENDIX.

Dr. R. A. STERLING (*Intercolonial Medical Journal of Australasia*, Aug. 20, 1898; *New York Medical Journal*, Oct 15, 1898), in his third clinical lecture on the "Treatment of Acute Appendicitis," thus tabulates the more frequent complications that may upset all plans of treatment, even in the presence of the most careful technique: (1) General septic peritonitis. (2) Intestinal obstruction due to kinking of the recently separated intestine, or to adventitious bands. This is a possibility after any serious abdominal operation, and the author has related elsewhere a case of strangulation of the lower part of the ileum by such a band successfully treated by abdominal section. Three years previously the woman had been operated on for an ovarian tumor. (3) Retroperitoneal abscess. (4) Fecal fistula occurred in one of his forty-two cases, and healed spontaneously. The enterolith may be a cause, when not escaping with the discharges. (5) Multiple abscess of the liver. (6) Gangrene of the cæcum. (7) Phlebitis of the femoral vein. (8) Communication of the abscess with the rectum, vagina, or bladder. (9) Ventral hernia, which is said to be an exceedingly frequent sequel in America. (10) Fatal hemorrhage. Bryant mentions one case from ulceration of the deep circumflex artery; Fowler another from ulceration of the iliac vein. (11) Parotiditis. Paget saw five cases following perityphlitis. (12) Empyema. (13) Pericarditis.

THE TREATMENT OF GONORRHEA, ESPECIALLY WITH ARGONIN AND PROTARGOL.

NIEBERGALL (*Deutsche Militairärztliche Zeitschrift*, No. 6, 1898; *Centralblatt für Chirurgie*, No. 36, 1898) found that the duration of treatment with the albuminous compounds of silver known as argonin and protargol was not materially shortened. About ten days was required for the destruction of the gonococci, and ten days more for allaying of inflammation when cases came early with involvement only of the anterior urethra:

when the entire urethra was inflamed the treatment lasted much longer.

Because of the expensiveness of these products the author rejects them for use in the army; a twenty-day treatment for each individual will cost about $1.25. Thus 7000 cases, the constant average of the German army, would in a year's time cause over $100,000 to be expended on the silver salt.

He holds that irrigations with permanganate of potassium are as efficient and possess the merit of being extremely cheap.

FORCIBLE STRAIGHTENING OF SPINAL CURVATURES.

RIDLON (*Medical News*, Oct. 15, 1898) has attempted the operation of forcible straightening in sixteen cases of spondylitis, seven cases of scoliosis, and one case of rachitic curvature. The cases of scoliosis present nothing of sufficient interest to warrant detailed description. The youngest patient was nine years old and the oldest eighteen years; the shortest duration of deformity was eighteen months and the longest seven years. In all the cases the deformity was reduced one-third to one-half.

The patient in whom rachitic curvature was present was a male, seventeen years old, and the deformity dated from infancy. There had been no increase of deformity for fourteen years. The operation was performed on January 13, 1898, and nothing was gained in the way of correcting the deformity.

Taking into consideration all the cases of spondylitis, four patients had demonstrable abscesses, one had old sinus, and one had paraplegia. No harm appears to have arisen from the abscess complication, or from the presence of old sinus. The paraplegia appears to have been positively benefited. Two patients stopped breathing on being turned from the prone to the supine posture during the chloroform narcosis, but both began to breathe again after a short interval; in one instance the plaster-jacket was cut open and allowed to gape one inch, and in the other it was not. Only one patient showed any elevation of temperature after the operation. In this instance disseminated pulmonary tuberculosis was suspected, but not proven. The patient's temperature was not taken before the operation, and consequently it is not certain that the elevation was due to the operation. In two instances it was not possible to straighten with what seemed to the operator a safe amount of force. Pressure sores under the plaster dressings have been frequent. Their locations have been over the kyphosis, the scapular spines, the posterior iliac spines, and the sternum, and in various places about the head.

Relapsed deformity can usually be greatly reduced by a bearable amount of horizontal traction with backward bending over a foot-rest without anesthetization. Only two patients have as yet been allowed to get up and walk around, one in a plaster-jacket, and one in an anteroposterior leverage spine brace. In no case as yet does the author think he has obtained reliable bony solidification at the point of the disease.

All the cases of scoliosis were materially straightened and made taller, but all have lost part of the gain since the operation. It appears doubtful if a permanent straightening is maintained unless a reliable fixation-dressing is worn for a long time. Despite his failure above recorded, Ridlon is convinced that straightening of rachitic curvatures can be effected in younger patients.

THE TREATMENT OF SWEATING FEET.

GERDECK (*Centralblatt für die Gesammte Therapie*, October, 1898, recommends for the cure of this affection painting the soles of the feet with formalin. In the afternoon, the evening, and on the following morning the soles and heels are treated, the brush being carried over these surfaces four times; twice over the plantar surface of the toes. About twenty drops of formalin is used for each application. Four to six drops of the antiseptic is poured into each shoe.

Almost immediately the offensive odor disappears.

If a thirty-per-cent solution of formalin is used, six or seven coats should be applied at each treatment.

The effect of these paintings lasts three or four weeks, when they must be repeated. The application is slightly painful, but not in the least crippling.

INSTILLATIONS OF PROTARGOL IN CHRONIC URETHRITIS.

DESNOS (*Annales des Maladies des Organes Génito-urinaries*, No. 7, 1898; *Monatshefte für Praktische Dermatologie*, Bd. xxvii, No. 8) treats chronic diarrhea by instilling daily, or if the reaction from this is too great, every second day, twenty to sixty drops of a five-

to ten-per-cent solution of protargol into both the posterior and anterior urethras. Thirty-seven out of forty-six cases thus treated were definitely cured.

Tuberculous disease was not influenced by this treatment.

Four cases of blenorrhagic cystitis were cured by from five to seven instillations of a five-per-cent solution. When the bladder is inflamed, however, it must be entirely free of urine before the protargol is instilled.

CLINICAL INVESTIGATIONS CONCERNING MUSCULAR RHEUMATISM.

ERBEN (*Centralblatt für Chirurgie*, Sept. 10, 1898) contributes a paper of great importance to surgeons as showing the danger incident to the too common diagnosis of obscure pain as muscular rheumatism.

In twelve cases of alleged rheumatic wry-neck he discovered that not one was really due to rheumatism. The abnormal position was not caused by pathological contraction of the sternocleidomastoid, but was primary and was assumed to lessen pain; the muscle contracture was secondary and due to position. The pain and tenderness were in all cases on the convex side and not closely related to the muscles. Tenderness was especially elicited over the fourth upper spinous processes. In three instances the great occipital nerve was tender on pressure. In one case the smaller posterior superior nerve was tender over the mastoid process. In every instance the lateral flexion of the rigidly held head could be increased without pain. Sometimes rotation towards both sides was possible, often turning towards the convex side was difficult. None of the muscles of the concave side showed increased tonus. Pain was not caused by visible extension of the neck, hence spasm was not the cause of the torticollis. It was evident that the joints on the convex side of the cervical spine were diseased, or that the roots of the nerves passing out at this side were affected. This diagnosis was not nullified by the possibility of rotation, since this motion takes place almost between the atlas and axis.

Two hundred cases of lumbago were observed. In not one was muscular disease noted. In 119 cases there was affection of the articulations of the lumbar vertebræ characterized by tenderness to pressure over the joints, limitation of lateral flexion and lateral curvature, the concavity of this curvature being toward the sound side. Twenty-one cases were instances of neuralgia of the cutaneous nerves which have their origin in the three lower lumbar branches. The region of the vertebral articulations was not tender. In some cases the diagnosis could not be formulated. Some were alcoholics, some were beginning tabetics, and one was suffering from osteomalacia.

This study is extremely important, since it shows how often the surgeon is led to an erroneous treatment by the very common diagnosis of all obscure back pain as rheumatic; though a more accurate knowledge as to the true cause of this pain may not lead to the finding of any specific remedies for it, it will at least prevent the needless saturation of the systems of patients with antirheumatic medications.

OPERATION ON UTERINE CANCER.

GALVORN (*Centralblatt für Gynäkologie*, No. 35, 1898) operated on thirty-nine cases of uterine cancer with a hot iron. In nearly all of these the disease had extended widely; seven died shortly after operation; three in the course of six months without local recurrence. Of the twenty-seven cases reported as cured, seven were well for more than two years after operation, seven more than one year, four for more than seven months, and ten for less than six months.

PYEMIC SINUS THROMBOSIS.

WHITNEY (*Archives of Otology*, February, 1898) writes an interesting *résumé*, based upon three successful operative cases. Chronic suppuration of the ear is responsible for the greatest number of intracranial inflammations. Authorities have found that micrococci and bacilli were always associated in fetid secretions, while in the non-fetid only micrococci were present. Poliver determined "by culture and inoculation that the bacilli present in foul discharges were not pathogenic, but possessed saprophytic properties only, while inoculation with the micrococci produces speedily fatal sepsis." Gruber states that this conclusion demonstrates that the offensiveness of a discharge from the ear is no criterion of the danger to be apprehended from it. The healthy mucoperiosteum offers a strong resistance against the invasion of bacterial products, and consequently absorption is very slow, the microorganisms being destroyed by the phagocytic properties of the leucocytes. When the disease becomes

chronic the tissue defense becomes greatly weakened.

The author recognizes two varieties of sinus thrombosis, viz., primary or marasmic, and secondary or infective. The last named is the usual form following middle-ear suppuration. The "path of infection" in septic brain diseases is most commonly from direct extension from diseased bone lying in contact with the skull contents.

In a thrombosed sinus "disintegration of the clot may be sufficiently extensive to cause a partial restoration of the lumen of the vessel, and the current be reestablished either through the center of the thrombosis, or between it and the nasal wall, in which manner portions of the septic material are swept into the circulation and deposited elsewhere, giving rise to metastatic abscesses characteristic of pyemia." Furthermore, general infection may result from lymphatic absorption of the pyogenic organisms which penetrate the walls of the diseased veins and sinus and infiltrate the adjacent tissues.

"An attack of sinus phlebitis is usually ushered in by pain over the affected side of the head, malaise, nausea, preceded or followed by a sudden chill and a sudden and pronounced rise in temperature, 106° F. being frequently observed."

Rigors are a characteristic symptom. Vertigo is more constant when associated with meningitis; it is not a distinguishing symptom. Consciousness is a very varying symptom. In the early septic stage, Griesinger's symptom, edema of the region of the occipital vein, with marked tenderness on pressure in the upper portion of the post-cervical triangle, is a valuable guide. Edema of the eyelids of the affected side at times assists in arriving at a prompt diagnosis.

Zanfal (1880) first suggested the feasibility of opening and cleansing the sinus from purulent thrombi, and of ligating the internal jugular as a prophylactic measure.

As to the time to operate, Körner says: "As soon as you have made the diagnosis of sinus thrombosis, the moment to operate has arrived." The author believes that the tendency of infective thrombosis is always toward disintegration and the establishment of metastatic embolic processes. He further recommends that operators should always ligate the internal jugular vein when the sinus contains purulent material or a disintegrated clot. If the clot extends into the jugular vein, the vessel should be tied at the lowermost portion of the obstructed vein and as high up as possible, and then resected. In this method we avoid the probable infection from decomposition of the clot.

In cases where we cannot reestablish the circulation from below the jugular bulb, whether the disintegrated clot has been removed or not, the author states that it is an imperative duty to ligate the jugular vein. It is very gratifying to observe that he also enters a vigorous protest against the danger of manipulating a diseased vein in the neck in the hope of dislodging the clot. This procedure is more apt to favor the further spread of the infectious material.

At the present time the prevailing opinion of operators is to tie the jugular in all cases where toxic symptoms are pronounced, or where metastases are already present. The jugular vein should be tied before the sinus is opened. Voss recommends that the sinus should first be uncovered and the diagnosis verified, after which the jugular can be ligated.

The author summarizes as follows:

First.—The indications for jugular ligation in thrombosis of the sigmoid sinus, before exposing the sinus, are:

(*a*) The existence of chronic otorrhea.

(*b*) Pronounced manifestations of pyosepticemia, high fever, sudden remissions, and repeated rigors.

(*c*) Metastases.

(*d*) Griesinger's symptom, occipital edema.

(*e*) Edema of eyelids of corresponding side.

(*f*) Tenderness along the course of the jugular in the neck, and perhaps the cord-like feeling of the infected vein.

(*g*) Beginning neuro-retinitis.

Second.—The indications for ligation after exposing the sinus and recognizing the thrombosis, but before opening it:

(*a*) The presence of a clot extending well down into the bulb and disintegrated in its lower portion (as indicated by aspirator), associated with distinct pyemic symptoms, although metastases are absent.

(*b*) The display by the sinus of respiratory movements would render probable the admission of aerial embolism to the heart unless the vein were first tied; such movement in the sinus wall indicates the presence of a clot somewhat back toward the torcular from the point where the aspiration takes place, and has been noted by Jansen, Schwartz, and Körner, while sudden and fatal asphyxia from aerial embolism of sinus has been reported by Kuhn.

Third.—Indications for ligation after exposing and opening of the sinus:

(*a*) The presence of a large thrombus, extending down into the bulb, and having undergone purulent liquefaction in the deep bulbous portion, which may not have been diagnosed until the sinus was extensively opened; the curetting deeply into the neck under such conditions is fraught with imminent risk to the patient unless the vein is tied.

(*b*) Inability to reestablish the circulation from below, whether the clot has or has not been disintegrated, and whether or not there has been tenderness in the neck.

(*c*) Inability to reestablish the circulation from either direction has aroused some discussion as to the advisability of ligating both jugulars, but the author does not find that any serious consideration has been devoted to this question.

Whitney believes that it is a dangerous practice to place the nozzle of the syringe in the divided end of the jugular, near the bulb, and wash out the contents forcibly upwards and out of the opening in the sinus wall; for if the visceral layer of the wall is softened the injected fluid may rupture it and pass into the subdural or subarachnoid space, thus distributing infective material.—*The Laryngoscope*, September, 1898.

THE TREATMENT OF FRACTURED BONES BY OPERATION.

BARKER (*The Lancet*, Aug. 20, 1898) states that the question as to the propriety of treating fractures by surgical operations by wiring is one which at the present time is engaging a good deal of attention. As yet the majority of surgeons appear to be agreed that for most ordinary fractures other and simple mechanical modes of treatment are quite adequate and involve less risk, and with this view the author entirely agrees. There are, however, a considerable number of fractures which proverbially give but indifferent results if treated by mechanical appliances, and to these surgeons are beginning to apply operative treatment in ever-increasing numbers. To this class belong fractures of the patella and of the olecranon, whether recent or old, and fractures of the long bones of the leg or arm in which union is long delayed or totally absent. Hitherto the great bugbear in the operative treatment of such fractures has been the risk to limb or life involved in the operation. The nature of these risks we all know, and in the past they have very properly checked and limited operative undertakings. But how far this ought to be the case now with our greatly improved technique is a matter which appears to him to be open to discussion. With a view to clear his own impressions upon this subject he has for some time past been collecting those cases in which he has operated for fractured bones and studying the results in order to see whether the series appears to justify such interference or not. As these results will probably interest others who are speculating on the same subject, the author has decided to publish them. The cases have all been operated on for injury of bones recent and old. If they have any value it lies in the fact that they form an unbroken series and have been operated on by the same surgeon, with almost identical precautions in each case against surgical accident. There are forty-six cases in all, including some in which bones have been divided for various reasons and subsequently sutured, such as, for instance, where the patella or olecranon has been sawn across to explore a joint or reduce a dislocation, but not including excisions. Of the latter it may be said that though their fate would materially and favorably influence the question of the unjustifiability of interfering extensively with bones, they belong to a somewhat different category. Of all his excisions of the knee the author has lost none, and only two have subsequently required amputation—the case of an old woman whose knee he tried to save and a young woman who came to him for amputation but whose leg he tried to save first by excision. The forty-six cases alluded to arrange themselves thus: subcutaneous suture of patella for fracture, 19; suture of patella (open method), 10; suture of olecranon for fracture, 6; suture of olecranon for dislocation, 2; suture of bones of forearm (ununited fracture), 2; suture of bones of leg (ununited fracture), 4; suture of clavicle (ununited fracture), 1; suture of patella after division, 2; total, 46.

Of the first group it need only be said that all have recovered well from the operation without any accident. The writer has made every effort to follow these cases up to date, and results have been excellent. In some few a little limitation of movement has remained, but the limb has been firm, and as far as could be made out the union of the fragments was osseous. In none so far has the wire appeared to give any trouble. Of

several he possesses skiagrams. These show that though the union is bony the adjustment of the fragments to one another was not always symmetrical. This has not appeared to unfavorably influence the movements of the joints, as we know, indeed, little irregularities in the patella in rheumatoid arthritis do not always do. Several of the patients were absolutely restored to as good use of the injured limb as though it had not been damaged at any time. Those cases in which stiffness was noticed to any extent were past middle life, and it was seen even in cases which had healed without reaction. On the whole, he is very well satisfied with his subcutaneous method of suture for recent cases at any age. For fractures which have remained ununited for months of course the open method will be required, but such cases will become rarer and rarer as the simplicity and freedom from risk of the subcutaneous method is more fully recognized.

Of old fractures of the patella there are ten cases, and of these eight healed by first intention without any suppuration. Cases 2 and 7 suppurated, but not very seriously. The first was one of the writer's earlier cases treated long ago, and the suppuration was in the periarticular structures. He saw the patient years later with an excellent movable knee, and removed the knot of wire, which was giving him some trouble. Case 7 was one of comminuted fracture of the patella, almost compound, with loose fragments which had to be removed. Those which remained were surrounded with a "purse-string" suture and thus drawn together. Some swelling followed and effusion into the tissues above the knee, but though he made incisions only serum escaped. The main cavity of the joint appeared to be quiet all the time, though the suture wound opened and the wire had to be removed in part. Barker put this case down as suppuration, as there certainly appeared to be some, and the wound yielded pus, though not to a large extent. He has lately seen the patient, who is well satisfied with the result. There is much stiffness in the knee, though he thinks this will pass off to a great extent in time.

One of the last cases operated on was particularly interesting; it was one of transverse fracture by very slight muscular action. But the joint was enormously swollen and looked as if about to suppurate. The author opened the joint by a curved incision with the convexity upwards and found a great deal of broken-down blood-clot, almost purulent. This was removed and the bone fragments brought together with one silver wire. The wound healed absolutely by first intention and the patient left the hospital. Before he went he was discovered to have ataxic symptoms. Two months later he was admitted to the medical wards as a case of Charcot's knee, the joint having become greatly distended. As there appeared to be pus in it, it was opened by a colleague during the writer's absence and much broken-down purulent material was evacuated. It was then found that the wire had worked through the lower fragment and was loose. It was removed and the joint was drained. The man soon left the hospital healed, but with all the signs of ataxia, and has not since been seen. Had the condition which probably favored the fracture been recognized at the outset he should not have been operated upon. But the man was young and the symptoms were not well marked.

In all the eight cases where there was no trace of inflammation after the operation the results were admirable, and in the other two the state of the patients or their joints did not appear to be critical at any time.

Six recent fractures of the olecranon were wired, and with the exception of one, which was compound and comminuted, the results as to movement were admirable. All healed *per primam*, even the compound case, but here there remained great stiffness. The woman was fifty-three years of age, and when the adhesions were broken down under an anesthetic about a month after discharge from hospital the line of union in the fragments gave way in spite of the "purse-string" silk suture. In the other cases the results were almost or absolutely perfect.

Recently Barker saw a blacksmith's hammerman whose broken olecranon he wired two and a half years ago, with as strong and movable an arm as if it had never been broken. The method employed for some years has been to make an oval flap, drill the fragments transversely, and use wire, making the knob on the outside. In only one case so far has the wire given trouble. It irritated the skin and had to be removed. In two cases he divided the olecranon as a preliminary to reducing old dislocations of the elbow. In one, a boy aged twelve years, though firm union resulted, there was considerable stiffness of the joint when he left the hospital. He has not been seen since. In another, a woman aged fifty-six, whose dislocation dated from four months back,

he divided the olecranon, reduced the dislocation, and primary union resulted. When last heard of the result bade fair to be perfect. In two cases the radius was cut down upon and wired for old ununited fracture. The first he has not seen since the operation; the last, a middle-aged woman, recovered with primary union and with good use of her arm. The clavicle united perfectly under one dressing and all the symptoms were relieved.

In two cases the author divided the patella for access to the joint and wired at once. The union was primary in both without reaction and the patients left, much relieved in one case; the other was a private case and was quite relieved.

Of the four cases in which the bones of the leg were wired for ununited fracture primary union took place in all, and the functional result was perfect in three. But in the first union had not taken place in the bones when last seen and the patient cannot be traced.

The writer states that he thinks the results encouraging, especially as they were achieved in an old hospital now happily being rapidly rebuilt. With care and experience the results ought to be better in the future.

THE CONSERVATIVE AGENCY OF SHOCK.

Dr. H. G. WETHERILL (*Journal of the American Medical Association*, March 12, 1898) in an article on this subject deduces the following conclusions: (1) Surgical shock entirely unassociated with hemorrhage is a condition rarely seen, and one which may usually be successfully treated in persons who are otherwise in good health. (2) Hemorrhage, though small in amount, is a far more important factor in the production of surgical shock (as it is seen clinically) than we have been accustomed to think it. (3) This mixed shock (traumatic asthenia) should be designated by some distinctive title, or the term shock be construed to comprehend all the factors in its genesis. (4) While not proven, it seems probable that the effect of even a small continuous arterial hemorrhage is to produce through its reflex action lower blood-pressure, and in general a condition so like true shock as to be very difficult of differentiation, particularly if the hemorrhage is concealed, as in ruptured ectopic pregnancy. (5) Surgical shock, with or without hemorrhage, must be construed as primarily conservative in its tendencies. The incident prevention of rapid exhaustion, of acute suffering, or great blood loss when the blood-vessels are opened, all tend to the ultimate saving of life. (6) Premature stimulation in the treatment of traumatic asthenia may defeat this conservative effort of Nature. Bleeding should be stopped and proper provision made for the comfort and welfare of the patient before strong stimulation is resorted to, unless there is imminent danger of death. (7) Anesthetics must be sparingly and carefully given to patients suffering from surgical shock (traumatic asthenia), chiefly because they completely obliterate the reflexes. The saturation of the patient with an anesthetic may turn the scale against him, even though the direct effect of the anesthetic be stimulant. The same rule holds good in regard to the employment of alcoholic stimulants if too freely used. (8) We should cooperate with and supplement Nature's conservative efforts. They are always exercised in behalf of the patient, never against him.

TWO CASES OF RECOVERY FROM TRAUMATIC TETANUS AFTER THE USE OF ANTITOXIN.

G. G. DAVIS (*Annals of Surgery*, August, 1898) reports two cases of traumatic tetanus successfully treated by tetanus antitoxin. The author had formed the opinion that the value of antitoxin in the treatment of tetanus was not proven, encouraged thereto by a contribution of Dennis. Davis pushed its administration, both as to the amount and length of time, to the extent of his resources. His first case developed stiffness of the muscles of the back one week after the wound, and four days later this had involved the neck and jaws. He reported for treatment one week from the first appearance of his symptoms. At that time the pulse was below 100, respiration 36, and there was stiffness of the muscles of the back, most marked in the lumbar region. In the following twenty-four hours there was no marked progression of symptoms. The antitoxin was then administered. The case in all received forty-two doses of eight to ten cubic centimeters in eighteen days.

The second case developed tetanus two weeks after the wound and was given twenty-eight doses of the antitoxin (Roux) in twelve days. Sedative drugs were used in addition to the antitoxin.

The first case was comparatively mild; the second case when he came to the hospital

was having three to eight spasms per hour, and had been suffering from symptoms for a week prior to presenting himself. Both these cases recovered, and the reporter has the impression that the antitoxin did help them. It is worthy of note that over a hundred dollars' worth of the antitoxin was used.

UREMIA IN THE PROCESS OF CHILD-BEARING.

In the *American Journal of Obstetrics* for August, 1898, LEWIS writes on this subject. He says that prophylaxis is of the utmost importance in the treatment of the uremia of pregnancy, since by proper dietary very many cases of severe intoxication may be nipped in the bud. The occurrence of albuminuria or other symptom of faulty elimination, such as low specific gravity, small daily amount of urine, headache, nausea, etc., should be the signal to put the patient at once on a milk diet, exclusively milk for a while, until the cessation of the alarming symptoms indicates more latitude in the *menu*. The diet throughout the rest of the pregnancy should contain little of the red meats or other food likely to cause an excess of the nitrogenous contents of the blood. The pregnant woman with albuminuria should not travel, for fear of the excitation of the genital organs produced by the jarring of the train. Iron and other tonics should be used for the anemia which is often present. Mild diuretics and drinking of much water should be advised. Warm baths or Turkish baths are useful and not at all dangerous unless in excess. Laxatives, preferably the milder salines, should be given as often as needed to keep the bowels free.

Should the prophylaxis fail there comes up the question of interference with the pregnancy. If, in spite of proper effort and of proper cooperation on the part of the patient, the symptoms should continue to become more grave, especially should the daily amount of urine continue to diminish and the total urea to remain low, he thinks the weight of present authoritative opinion would advise induction of labor. As in the incoercible vomiting of pregnancy, each case must be duly considered by itself as to when the time for interference has come. Of course the method employed to induce labor will depend upon the time of the pregnancy. As the very first labor pains are likely to excite convulsions, it is imperative to be as quick as possible. Manual dilatation, Barnes' bags, instrumental dilatation, Tarnier's ecarteur, or the deep cervical incisions of Dührssen, will be used according to the circumstances of the individual case. Charpentier and the French as a rule advise waiting for the natural supervention of labor and ending it naturally if possible. They entirely discard forced labor and Cæsarian section in eclampsia, preferring the use of chloral to the point of narcosis. Dührssen and many of the Germans advise immediate and even forcible delivery in eclampsia or when that is imminent, always under deep chloroform anesthesia. Between these comes the great body of the profession, which adopts a middle course within these wide limits.

The fact that, in eclampsia continuing after the labor, there seems to be a decided benefit observable from free hemorrhage points to the rationality of blood-letting at any time when spasms occur. This procedure seems more beneficial in those acute cases accompanied by much edema, large amount of albumen, sudden onset of the uremic symptoms, full, bounding pulse, and cyanosis. Bleeding seems rational in such an array of conditions if ever, whatever the cause of the convulsions may be, whether uremia, heat-stroke, epilepsy, or what not. Without doubt it has almost always, under such circumstances, been immediately beneficial in puerperal uremia, but there is question whether it does not do more ultimate harm than good. The relief may be immediate; but as the volume of blood returns to normal by the imbibition of water from the alimentary canal and the tissues, or from hypodermoclysis, the tension returns, and we are then confronted by the former conditions with the addition of an acute anemia. According to Leyden's idea, the very lesion in the kidney is anemic. Therefore, while it may be justifiable in the plethoric to do phlebotomy in order to gain time for the action of eliminative drugs and for obstetric interference, yet the procedure is dangerous and should not be carried to any great length. Venesection was the treatment in Guy's Hospital before 1868, and the mortality in puerperal eclampsia was thirty per cent. Since then it is 20½ per cent under the treatment by chloroform.

Since the overwhelming weight of opinion is that the eclampsia is caused by faulty elimination, and since the vast majority of authorities recommend measures directed to favoring elimination by the skin, bowels, and kidneys in the early stages of the intoxication, it would seem to follow that radical

means ought to be employed in that direction when the graver attacks come on. Such is the justification for the use of pilocarpine, hot air, elaterium, and the drastic hydragogues. One should remember in employing these measures that they all tend to weaken the heart, and that upon the maintenance of the cardiac strength depends our hope of recovery. They should be used only with caution and in cases where the pulse is of good quality, unless they be used as forlorn hopes after other measures have failed.

Veratrum viride has been used, especially in this country, since its introduction by Fearn, of Brooklyn, in 1869, in cases of uremic attacks of all kinds, and it has vigorous partisans in the convulsions of childbearing. Jewett refers to twenty-two cases, in only one of which did convulsions recur after treatment had been established. He advises its use subcutaneously in doses of ten to twenty minims until the pulse-rate has been brought under 60, when, in his experience, spasms will not occur. Similar good results have not been obtained in England from veratrum. In American literature there are very many favorable reports of cases, but nobody has, as far as the author knows, published a series of cases, covering any length of time, giving both sides of the statistics of the use of veratrum. Many who recommend veratrum advise and use also rapid evacuation of the uterus under chloroform anesthesia. In an affection where so much depends upon maintaining the force and regularity of the heart, it seems very heroic and dangerous treatment to employ to its toxic action so powerful a cardiac depressant as veratrum, with the aim of controlling the spasms, which are themselves only a symptom of serious poisoning of the blood and of a vicious nerve state kept up by the presence of the contents of the gravid uterus. It would require very encouraging statistics indeed to induce the writer to trust alone to any method which avowedly only controls the visible explosions of the disease, to the exclusion of measures calculated to eliminate the poison, if possible, and to terminate as soon as safely can be the condition of pregnancy, which is at the bottom of the whole trouble.

In 1887 Gustav Veit strongly recommended morphine in large doses for puerperal eclampsia. He begins with a dose of half a grain, and follows it soon with a smaller dose, unless the narcosis is complete. He gives another dose as soon as consciousness begins to reappear, and keeps the patient in that condition for hours, or even days, until the child is born and the tendency to spasm ceases. No other treatment is recommended. Olshausen favors the morphine treatment, but would permit forceps or version in the interest of the child, if these operations could be easily performed. The action of the narcosis paralyzes the voluntary muscles and thus stops the attacks, which in themselves tend to increase the arterial pressure and consequently the morbid condition in the kidneys and in the brain. The prognosis for both mother and child is said by the advocates of this treatment to be better than by any other method. Löhlein claimed that it had reduced the maternal mortality to fourteen per cent, and that the infant mortality had been reduced to forty-one per cent. Dührssen criticizes Löhlein's statistics, both as to their accuracy and on the ground that they embrace too few cases to be of value. In the latter's collection of 325 cases of eclampsia from all German clinics were eighty-six cases where the morphine treatment had been used, not, however, by any means to the exclusion of other measures. In these eighty-six cases, twelve or fourteen per cent died, excluding complicated cases. The general mortality of the whole 325 was nineteen per cent. Some difference of opinion will always exist as to what cases, in a series given to prove percentages, ought to be excluded on account of complications.

The advocates of prompt obstetric interference in cases of the graver uremic manifestations in pregnancy base their claims upon various considerations. In the first place it is known that in the vast majority of cases the spasms cease or grow less severe as soon as the child is born, therefore the sooner that is brought about the better for the patient. The chief reason for not inducing labor is that the manipulations to that end will of themselves precipitate convulsions. This is not the case if the patient is under complete narcosis. Therefore, if narcosis be complete and the operation be done quickly, the patient is soon brought out of the condition of intoxication and of spasm and stands a better chance of recovery than if allowed to remain therein while the convulsive phenomena are palliated by cardiac depressants or by prolonged dosing with large amounts of morphine. The great trouble, especially in young primiparæ, who are the most subject to these attacks, is that it is very difficult to artificially empty the uterus with despatch. The earlier the eclamptic

seizures begin the harder to induce the labor. The accouchement force is apt to be dangerous of itself. Dührssen devised an operation to overcome this difficulty. In the primipara, after the head has become engaged in the pelvis toward the last few weeks of pregnancy, the body of the cervix becomes effaced, and though the os may be as tight as a pin-hole, yet the cervix is stretched over the protruding head in a thin layer. The main time in inducing labor is taken up by the dilatation of the os. Dührssen makes incisions laterally, and, if necessary, anteriorly and posteriorly, completely to the vaginal attachment through the cervical tissue, thus entirely and at once obliterating the period of dilatation of the os. Then he turns or applies high forceps and delivers at once, perhaps doing episiotomy if there is difficulty in passing the head over the perineum. He claims that the incisions thus made usually heal without incident or can be repaired like ordinary lacerations. The patient is thus at once brought into the puerperium, and, if the eclampsia continues, the other means mentioned may be used against it with the very favorable circumstance that now the pressure of the distended uterus is eliminated from the causation. In a symposium at the Boston Obstetrical Society these conclusions were reached: that nothing is gained by delay in puerperal eclampsia, that the continuous administration of anesthetics has not been known to allow of the reappearance of the convulsions, and that slow manual dilatation and emptying of the uterus has been repeatedly successful. Dührssen's method now makes this slow manual dilatation unnecessary. In multiparæ the internal os is usually not open, nor is the cervix flattened out over the head, so that in such cases manual or instrumental dilatation must be employed instead of the deep cervical incisions. Where immediate delivery in eclampsia is imperative, even Cæsarian section has been strongly recommended. Puech considers that in a pregnant woman, if the albuminuria persists in spite of milk diet, and especially if it be accompanied by gastro-intestinal symptoms and dyspnea, the maternal interests demand the induction of labor. Indeed, modern opinion seems to be tending toward ending the pregnancy as soon as it is evident that the uremic symptoms are not being controlled by the dietetic and diuretic treatment, and not to wait until the graver accidents, such as coma or eclampsia, come upon us unawares.

Reviews.

TEXT-BOOK OF HISTOLOGY, INCLUDING MICROSCOPIC TECHNIQUE. By Dr. Philipp Stöhr. Second American from the Eighth German Edition. Translated by Dr. E. Billstein, and Edited with Additions by Dr. Alfred Schafer. Freely Illustrated. Price, $3.00.
Philadelphia: P. Blakiston, Son & Company, 1898.

The author of this book, Dr. Stöhr, is professor of anatomy in the University of Würzburg, the translator is the director of histology in the Woman's Medical College of Pennsylvania, and the editor is demonstrator of this branch in the Harvard Medical School at Boston. To some of our readers the first American edition of this volume is probably already familiar. To the present volume the editor has added a number of illustrations taken from original drawings; new editorial remarks and criticisms of the text have also been introduced.

Of the numerous books on histology which have recently appeared this strikes us as being one of the best, not only because of its contents, but because of the beautiful way in which it is printed, with large type on heavy paper, the wide pages making a book which lies readily open on the desk before the student and is easily perused. As a matter of fact, if we were called upon to choose between this book and that of Dr. Dunham, which we reviewed in our last issue, we would find it difficult to make a decision. It is interesting to note in this connection that this volume is recommended by the professor of pathology and histology in the Jefferson Medical College to the students of that institution in the teaching of histology.

A TEXT-BOOK OF OBSTETRICS. By Barton Cooke Hirst, M.D. Copiously Illustrated. Price, $6.00.
Philadelphia: W. B. Saunders, 1898.

It is very proper that the professor of obstetrics in such an important school as the University of Pennsylvania should come before the profession and students as the author of a complete and accurate text-book of obstetrics; and a close examination of the pages of this volume reveals two facts, namely, that they bear almost invariably the personal opinions of the author neatly associated with the opinions of others. This is evidenced not only by the text, which shows a wide knowledge of obstetrical literature, but by the copious foot notes which can be turned to by those who desire to look into the matter under discussion more fully. This volume, although it covers over 800 pages, may be considered a most concise work, and

while it is too bulky to be readily used as a handbook, it is of such size that it contains all necessary obstetric knowledge without becoming so unwieldy as to be burdensome. In many of the foot-notes the author expresses views which he does not think it wise to express in the body of the text. The illustrations are many of them original, and the original ones are as a rule the most valuable. We are interested to note that Dr. Hirst condemns, as we believe all good obstetricians and therapeutists condemn, the use of pilocarpine in eclampsia. His treatment consists in the use of hot packs, hypodermoclysis, or intravenous injection, and the administration of full doses of the extract of veratrum viride. In the treatment of postpartum hemorrhage it is advised that the fluid extract of ergot be given hypodermically into the thigh, but we do not believe that this preparation is suitable for this purpose, first, because it is not absolutely reliable so far as its effect upon bleeding is concerned, and secondly, it is apt to clog the syringe and produce an abscess. The "aseptic ergot" is much to be preferred for these reasons and purposes. The only part of the book which seems to us to need revision is the index, for which the author is not directly responsible, for in it typographical errors are not rare and cross-references are lacking. Nevertheless, the index is adequate and only needs slight correction to be as good as the text.

While there are already a number of recent and very excellent books on obstetrics which can be used by students, this one seems to us to give promise of being exceedingly popular with the class of persons for whom it was written, and Dr. Hirst has produced a volume of which he himself, his friends and his pupils will be proud, and one which the profession in general will find most valuable as a practical guide.

HUMAN ANATOMY. A Complete Systematic Treatise by Various Authors, Including Surgical and Topographical Anatomy. Edited by Henry Morris, A.M., M.D., London. Profusely Illustrated in Colors. Second Edition, Revised and Enlarged. Price, $6.00.
Philadelphia: P. Blakiston, Son & Company, 1898.

A little over five years has elapsed since the first edition of this very notable book upon anatomy appeared, and during this time it has become an exceedingly popular work with teachers of anatomy and with students. The present volume resembles its predecessor in its typographical appearance, the pages are wide, the type is large, and the illustrations are exceedingly good. In the revision the editor has retained the services of those gentlemen who were engaged with him in the preparation of the first edition, with the exception of two, Dr. Arthur Robinson taking the places of Dr. Brooks and of Mr. Hensman. An additional section on Vestigial and Abnormal Structures by Dr. Robinson has been added to the volume, as has also a description of the skin by Mr. Anderson.

Naturally in such a subject as anatomy in its more elementary parts, as represented in this book, there has not been room for great revision. The present volume will be in the future, as it has been in the past, an active rival of that most popular work known to almost all English-speaking physicians by the name of "Gray's Anatomy."

MATERIA MEDICA, PHARMACY, PHARMACOLOGY, AND THERAPEUTICS. By W. Hale White, M.D., F.R.C.P. Fourth American from the Second English Edition. Edited by Reynold W. Wilcox, A.M., M.D.
Philadelphia: P. Blakiston, Son & Company, 1898.

This is a small octavo volume of about 700 pages, including the index. Why the fourth American edition should be published upon the basis of the second English edition when the third English edition appeared this fall and is in accord with the new English Pharmacopœia we do not know, and for this reason that part of the text which has been written by Dr. White does not represent his latest views upon therapeutics.

Dr. W. Hale White is well known to the profession in general by reason of his very able and interesting investigations which have been made at various times concerning fever and a number of other clinical conditions which have an important bearing upon the practice of medicine. Dr. White is also the lecturer on therapeutics at Guy's Hospital, London, and some of our readers are probably aware that his book on General Therapeutics, which deals with remedial measures other than drugs, is an ably written and interesting volume.

The present edition, from the point of view of the English text, represents a concise statement of modern therapeutics, and the American editor has added a very large amount of matter with the idea of making it represent the views of American physicians as well. These additions upon the part of Dr. Wilcox are useful and reflect the opinions of his American brethren. Sometimes they are absolutely antagonistic to the views of the author. Thus, Dr. White evidently does

not believe that phosphorus is of any value in rickets, whereas Dr. Wilcox expresses a diametrically opposite opinion. The book from its size lies between a compend and a more exhaustive book upon therapeutics, and deals with therapeutics in a manner which makes it better adapted for first and second year students than for those who are further advanced in their medical course. The fact that this is the fourth American edition proves that its value is appreciated, and we doubt not that it will continue to be used by the class of pupils that we have named with advantage and a gain in knowledge.

A COMPEND OF OBSTETRICS. By Henry G. Landis, A.M., M.D. Revised and Edited by William H. Wells, A.M., M.D. Illustrated.
Philadelphia: P. Blakiston, Son & Company, 1898.

This little compend has within a few years reached its sixth edition. Owing to the death of its well known author some years ago it became necessary for the publishers to obtain the aid of a physician who was capable of keeping it up to the most recent advances in obstetrics, and Dr. Wells has succeeded in the task which has been set him. Like most of the books in this series, it is published in the question and answer form and will doubtless remain in the future as in the past a popular compend for those who wish to "cram" this branch before going up for examination. We doubt whether the statement made on page 33 in regard to ovulation has been proved correct, namely, that frequent coitus results in frequent ovulation.

THE COLD-BATH TREATMENT OF TYPHOID FEVER. By F. E. Hare, M.D. Illustrated.
London: Macmillan & Company, 1898.

This is a book of less than 200 pages devoted to the Brand method of treating typhoid fever and written by one who has perhaps had a larger experience with this method than almost any other living physician. It is based, we are told, upon an experience of a consecutive series of 1902 cases treated at the Brisbane Hospital, and is copiously illustrated, in order to show the methods which the author has employed in the technique of the bath, and as to the means by which the patients are to be transferred from the bed to the bath and from the bath to the bed. Dr. Hare's method is one which is designed to conserve to the utmost the strength of the patient and to prevent him from using any effort on his own part during the bath. It is also designed to make the patient as comfortable as possible during the bath, a factor of great importance, for oftentimes the posture of the patient in the water is exceedingly uncomfortable, and it requires considerable muscular effort to prevent his head from being submerged.

We notice in reading this essay that, like many other clinicians who think for themselves, Dr. Hare has not blindly followed the arbitrary dictates of those who insist upon every detail of the bath being carried out in every case. It is evident that he recognizes the fact that individuals differ in the treatments which they require, and we believe that a part of his good results is due to the recognition of this fact. The bath treatment was, however, employed by him in all his patients after a certain date, with the exception of those who refused to submit to it, cases in which the temperature failed to attain the bathing point, which is 102.5°, and, most important, cases in which contraindications were present. It is needless to say that the comparisons made by Dr. Hare of the results of the cold-bath treatment, as compared to those of the so-called expectant method before he introduced the bath, are very favorable to hydrotherapy. Aside from the modifications of the treatment which we have mentioned and which make its use more agreeable to every one concerned, the author states that allowance must be made for the fact that as Brisbane is practically in a tropical climate patients naturally object less to the bath than those living in a colder zone. He also emphasizes the fact so greatly emphasized by Brand, that the bath must be used by the fifth day if the best results are to be obtained, and that it cannot be used late in the disease as a rule. This is an important point, overlooked by some and contradicted by others of less experience. Again, owing to the high temperature of the atmosphere in Brisbane baths were almost always given at a temperature of 75° or 80° instead of below this point, and therefore the shock to the patient was not as great as if colder water had been used. An important omission was made in that frictions were not made because the wards were "short-handed," but some of the disadvantage in this respect was more than counterbalanced by the fact that the patients were not exposed to very cold water.

Dr. Hare frankly points out that the treatment does not shorten the disease. Thus in 373 cases treated by the expectant method the fever lasted twenty-four days, and in 966 cases by the bath method it lasted 23.3 days.

So far as the stay in the hospital is concerned, which is, of course, a mirror to a certain extent of the time required for convalescence, we learn that the stay in the hospital in 431 expectant cases was 35.9 days, and in 1033 baths 31.6; in other words, but four days were saved in convalescence, and the fever was not shortened. Concerning relapses, 46 took place after normal temperature in 999 cases which were bathed, and 64 relapses took place if those cases are included in which the relapse came on when the temperature had not fallen to normal but was as low as 99°. The mortality of the relapse cases was 8.7 in the 46 cases named, or 12.6 in the 64 cases named. It is therefore evident that the bath increases the tendency to relapse, and that in the relapse mortality is greater than it is in primary attacks.

In regard to perforation and hemorrhage we find that before the bath was used there were 4.70 per cent of cases of death from this cause in 576 patients, and that after the bath was instituted there were 4.1 per cent of deaths from these causes in 1902 cases.

This monograph is an exceedingly valuable one to those who are interested in the discussion of this very vital question—and who is not? Dr. Hare has been unusually careful in the comparison of his statistics. Curiously enough, however, he has made one very important omission. Thus in studying the possibilities of error in his calculations he ignores the most important point in the whole field, namely, the differences in mortality which occur in the disease at the different periods at which it comes under treatment by the Brand method. Proper nursing, sanitary care, and slight medication, with the use of proper forms of hydrotherapy to control the fever, instituted as early as the fifth day in all cases of typhoid fever, would give a very low death-rate, whereas similar treatment or the bath treatment instituted later in the disease would permit a higher mortality. Further, if the bath were universally employed in late cases it would probably increase the mortality if the teachings of Baruch, H. A. Hare and others are correct, namely, that in the late stages of typhoid, when the body is too feeble to react, the baths are capable of doing harm.

In the treatment of typhoid perforation F. E. Hare believes in immediate operation as soon as enough morphine has been given to abate the violence of the pain, but first to wash out the stomach if vomiting has begun. When a perforation is found he thinks it ought to be enlarged longitudinally and the bowel drained, thoroughly closing the opening afterwards by a double row of Lembert sutures. The physician should examine the lower portion of the bowel to see that no secondary perforation is present, and if any spot seems about to perforate it should be treated as if it had perforated. After this the peritoneal cavity should be thoroughly flushed with warm water and a glass drainage tube inserted. He believes that the best incision is the slightly curved one recommended for operations in appendicitis. He thinks that the alteration in the rate and character of the pulse after perforation is sufficient to separate this condition from almost all forms of violent pain which come on in the abdomen during typhoid fever.

A POCKET MEDICAL DICTIONARY OF TWENTY-ONE THOUSAND WORDS. By George M. Gould, A.M., M.D. New Edition, Rewritten and Enlarged. Price, $1.00.
Philadelphia: P. Blakiston, Son & Company, 1898.

Dr. Gould has come to be known by the medical profession as *facile princeps* a builder of good medical dictionaries, for both of his larger volumes have been universally recognized as exceedingly valuable contributions to lexicography. The present pocket manual is smaller than the average visiting list, and therefore can be readily carried in the pocket. It is needless to state that it is correct so far as it goes, but its very abbreviated form necessitates equally abbreviated definitions. We happen to notice that the definition of paracresol, while correct, does not convey to the student the idea that paracresol is used in medicine as an antiseptic and disinfectant. This is but an illustration of the necessity of abbreviation. Naturally, also, this small volume does not contain all the useful tables which characterize Dr. Gould's larger publications, but a number of them, as, for example, the table of the muscles and of the nerves, are introduced.

PRACTICAL URINALYSIS AND URINARY DIAGNOSIS. A Manual for the Use of Physicians, Surgeons, and Students. By Charles W. Purdy, M.D., LL.D. Fourth Revised Edition. With Numerous Illustrations, Including Photoengravings and Colored Plates.
Philadelphia: The F. A. Davis Co., 1898.

Dr. Purdy's book upon urinalysis and urinary diagnosis is probably the most popular work that has ever been published on this subject, for three large editions of it have been exhausted in three years, and we are told in the preface that upward of sixty medical colleges have adopted it for a text-book. It is an octavo volume of 350

pages, well printed and well illustrated, and deals chiefly with the clinical side of the study of the urine. Because of the concise way in which the facts are stated, and because useless material has been excluded, it is exactly what it professes to be, a complete and yet condensed summary of the subject, and we congratulate the author upon having been able to present a book upon a well worn theme which has attained such an extraordinary success, a success which it is needless to say it well deserves.

DIET AND FOOD CONSIDERED IN RELATION TO STRENGTH AND POWER. By Alexander Haig, M.A., M.D., F.R.C.P. Illustrated.
London: J. & A. Churchill. Philadelphia: P. Blakiston, Son & Co. 1898.

We have received a copy of this little brochure of eighty-three pages from both the English and American publishers. Dr. Haig is well known for his interesting studies upon uric acid as a factor in disease, and while many of us are unable to agree with him that it is as much a factor as he would have us believe, he deserves an immense amount of credit for having called attention to a very important part of medical study. As may be gathered from the title of this book, it is a short essay designed to illustrate the necessity of regulating the quantity of the various foods which are taken in daily life, so that they will best supply the demand of the body under varying circumstances, and this subject of course cannot fail to be of interest to every one, whether he be a layman or a medical man. The book is well worth the half-hour's perusal which is required to grasp the points which Dr. Haig presents.

A MANUAL OF THE PRACTICE OF MEDICINE. By Frederick K. Taylor, M.D., F.R.C.P.
London: J. & A. Churchill. Philadelphia: P. Blakiston, Son & Co. 1898.

This small octavo volume, amounting to over a thousand pages, is familiar to many practitioners on both sides of the Atlantic, and has been fortunate enough to reach its fifth edition in the short space of eight years, proving that Dr. Taylor's experience as a teacher, physician, and examiner has qualified him to prepare for his professional colleagues the information which they find useful. The present edition has been reset in type and is somewhat larger than its predecessors. New chapters have been introduced concerning glandular fever, angioneurotic edema, and similar comparatively rare maladies. A separate section is devoted to Diseases of the Mediastinum. The author tells us that he has obtained much valuable information from the "Twentieth Century Practice of Medicine," from Allbutt's "System of Medicine," from Manson's "Tropical Diseases," and from Cole's "Treatise on the Blood."

While there is nothing distinctly original in the character of this book, it is a condensed and valuable summary of medicine. In some portions of the book the paragraphs devoted to treatment are not as complete as might be desired, and the author does not state his own opinions in a sufficiently dogmatic way. The book can be most cordially recommended to both students and practitioners as being a little less bulky than most of the volumes which are well known which deal with practice, and yet not so condensed as some of the small manuals which are forced to leave out important material.

A PRIMER OF PSYCHOLOGY AND MENTAL DISEASE. For Use in Training Schools for Attendants and Nurses and in Medical Classes. By C. B. Burr, M.D. Second Edition, Thoroughly Revised. Price, $1.00.
Philadelphia: The F. A. Davis Co., 1898.

Dr. Burr has prepared this second edition of his small octavo volume upon insanity and psychology within a comparatively short time after the appearance of the first edition. It is really a "primer," as its name indicates, and does not attempt to deal with the deeper problems which would naturally be considered in a larger volume. Indeed, it is a book more suitable for nurses than for physicians. An interesting glossary of neurological terms opens the volume.

MANUAL OF THE DISEASES OF THE SKIN. By L. Duncan Bulkley, A.M., M.D. Fourth Edition, Revised and Enlarged.
New York and London: G. P. Putnam's Sons, 1898.

It is undoubtedly because this book is truly a manual and deals in such a thoroughly practical way with the diagnosis and treatment of skin diseases that it is already in its fourth edition.

The first few chapters are devoted to the general considerations of the study of dermatology, anatomy and physiology of the skin, symptomatology, etiology, and classification. This latter is particularly simple and easy to bear in mind.

In the sixth chapter there is an analysis of twenty thousand cases of diseases of the skin, showing the relative frequency of the various disorders. It is worthy of note that acne, eczema, psoriasis, and syphilis hold first rank.

There are at the end of the book 118 prescriptions representing those found most

useful in dermatology. There is, moreover, an accurate medical index.

This is certainly a book which is likely to be most useful to the general practitioner. The author has carefully avoided vagueness in either symptomatology or treatment, and has stated briefly and clearly the results of his own exceptionally large experience.

YELLOW FEVER IN THE WEST INDIES. By Izett Anderson, M.D.
London: H. K. Lewis, 1898.

This is a small octavo volume of about one hundred pages, dealing with the author's experience in the treatment of yellow fever during a period of thirty-four years in the West Indies. Having been forced to retire from practice, he has now gathered together his notes and case-books, and has written the pages of this volume from the information derived therefrom. His object in writing the volume has been to help younger practitioners who settle in the West Indies to practice, as he believes that a clear conception of the etiology, pathology and treatment of this disease will aid them very materially in their work.

A MANUAL OF VENEREAL DISEASES. By James R. Hayden, M.D. Illustrated.
New York and Philadelphia: Lea Brothers & Co., 1898.

The second edition of Hayden's book has been enlarged by a chapter upon the Care and Use of Urethral Instruments; also it has been more profusely illustrated. In other respects the text is much the same as that of former editions, excepting that it has closely followed new and excellent modern teachings and is perhaps more systematic in arrangement and more clear and direct in its diction than before. This is saying a great deal, since the work admirably covers the diagnosis and therapeutics of gonorrhea, chancroid, and syphilis. It is a thoroughly trustworthy guide, and as such is worthy of the warmest commendation.

BRIEF ESSAYS IN ORTHOPEDIC SURGERY. By Newton M. Shaffer, M.D.
New York: D. Appleton & Company, 1898.

From the title of this work a surgeon would not unnaturally expect a brochure which would represent practically an epitome of orthopedic surgery. In this he would be disappointed, since the book contains a number of essays dealing with the ethics of the specialty rather than with the details of practical treatment. None the less, it is admirable and instructive reading.

The views of the distinguished author upon orthopedic surgery as a specialty are well expressed in the following sentences: "Before it can be a real specialty it must cease to appear in the rôle of a competitor with general surgery. It must not 'overlap.' Its disciples must cease to antagonize the best elements of the profession by posing as orthopedists, when they only lack opportunity to become general surgeons. And until this change is brought about there will be no true orthopedic surgery, except as here and there a man stands up for the right and defies criticism, for it is getting to be almost as rare to find a legitimate orthopedic surgeon as it is to meet with an orthodox gynecologist who does not 'overlap' and compete with the general surgeon in operating for appendicitis, etc."

CLEFT PALATE; TREATMENT OF SIMPLE FRACTURES BY OPERATION; DISEASES OF JOINTS; ANTRECTOMY; HERNIA, ETC. By W. Arbuthnot Lane, M.S.
London: The Medical Publishing Company, Limited.

Lane, who is well and favorably known to the American profession as an ingenious and skilful surgeon, has collected in book form a number of his clinical lectures. These deal with cleft palate, acquired deformities, mechanical or traumatic arthritis, some clinical observations on the principles involved in the surgery of fractures, treatment of simple fractures by operation, some of the consequences of wearing boots, tubercular affection of joints, some experiences in the surgical out-patient room of a children's hospital, treatment of inguinal hernia, a consideration of the principles that should guide us in the treatment of abnormal mechanical conditions of the hip-joint, antrectomy as a treatment for chronic purulent otitis media.

The field covered is a wide one, but the treatment of the various affections is practical, and even the experienced surgeon will find much that is helpful in this little book.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

In the *Journal of Laryngology* Dr. Eugene Yonge reviews the treatment of dyspepsia in laryngeal tuberculosis by drugs and by other methods. In selecting a drug the question to be solved in the bulk of cases is, what local anesthetic, while sufficiently powerful, is also prolonged in action, devoid of marked

poisonous effects, and not specially disagreeable to taste? Dr. Yonge carefully experimented with fifteen local anesthetics, both to ascertain their relative efficacy in relieving pain and also to decide their special fitness for this particular purpose. Like many other physicians, Dr. Yonge is driven to the melancholy conclusion that no drug is ideal for all cases, but that there are several which may be selected in any individual case, viz., cocaine, antipyrin, eucaine, orthoform, carbolic acid, guaiacol, ice, morphine (with or without iodoform), and paramonochlorphenol. He discards as useless holocaine, aneron, aconite, and tropacocaine. When ulceration is present any of the above drugs may be tried, but when there is no lesion of the mucosa, only cocaine, antipyrin, eucaine, carbolic acid, and ice are available. When perichondritis is present, antipyrin appears to be preferable to cocaine because its effects are more prolonged, and the amount necessary to produce analgesia is free from all risk. When cocaine has to be used for a long time, it is best mixed with either carbolic acid or antipyrin, which increases its influence without increase of its substance. Similarly iced solutions of five-per-cent cocaine were quite twice as active as the same strength of solution at the temperature of the air. With extensive ulceration a combination of morphine and iodoform could be relied upon to provide some measure of relief for several hours. Orthoform similarly produced its effects speedily and lasted for some hours, and the complete absence of any toxicity even in comparatively large doses makes it in many cases superior to cocaine. Guaiacol with or without menthol exercises some sedative and antiseptic influence on mild degrees of ulceration. Eucaine is in all ways less active than cocaine, and should be reserved for those cases in which there is any special idiosyncrasy to contraindicate cocaine. Solutions of paramonochlorphenol in glycerin were decidedly anesthetic after producing a preliminary period of rather severe smarting.

Of methods other than drugs, Dr. Yonge prefers rectal feeding, in severe dysphagia, to the esophageal tube, the passage of which is most distressing to the patient and may serve to increase the extent of the local mischief. He has nothing to say of such surgical procedures as curettement, arytenoidotomy, or epiglotdectomy, because he has not yet encountered a case of severe dysphagia which, while uncontrollable by drugs, was such as to justify surgical interference by reason of the state of the lungs and the general condition of the patient.

At the Manchester Therapeutical Society Dr. Wild read a paper on the toxic effects of boric acid. He referred specially to two cases in which this very innocuous drug produced dermatitis and other irritative effects, administered in small doses of ten to fifteen grains over a considerable period of time. Dr. Wild detailed some experiments by which he sought to show the rate of elimination of boric acid in the urine. In the presence of kidney disease toxic symptoms were not unlikely to result from accumulation of the drug in the system. He expressed the opinion that the addition of boric acid in small quantity to food as a preservative was harmless, but exceedingly liable to cause mischief in the larger quantities in which it is sometimes employed.

We most of us regard our overcoats with the reverence they deserve for warding off many evils from our frail selves, but alas! we have nursed a snake on our bosoms. After the recent snow-storm in Birmingham a large number of the men employed in clearing the streets were supplied with overcoats by the Birmingham County Council. The drenching rain saturated the overcoats so that they dripped about the men's hands and knees. Large areas of sloughing skin surrounded by a zone of inflammation and edema testify to the severity of the baptism. In some of the cases the nearest lymphatic glands are acutely enlarged and painful. The medical officer of health reports that the overcoats are replete with chloride of zinc, which is used abundantly in their manufacture. The Birmingham County Council have got the snow-drifts off their hands, but in their stead they have sixty injured employees and 300 death-traps of overcoats.

The Medical Society of London at its last meeting discussed the value of pressure in the treatment of wounds. An interesting discussion took place, and the balance of opinion seemed decidedly against pressure. The advocates of pressure employ it to secure apposition of the edges of wounds, to prevent oozing, to prevent bagging of fluid, to restrain muscular action, to prevent the yielding of cicatrices, and last but not least, to keep the dressings in place. Pressure firm enough to bring the edges of a wound otherwise apart into apposition was not unlikely to provoke sloughing and other evils, in Mr. Pearce Gould's opinion. The use of the drainage tube had rendered it

a quite unnecessary procedure in dealing with pent-up secretions; and, indeed, pressure was more likely to produce than to prevent serous exudations, because it could not influence the arterial circulation, and pressure on veins would certainly tend to this end. Pressure could not conceivably prevent the accumulation of blood in the abdominal veins. Mr. Doran was of opinion that pressure was useful after abdominal operations, because it assisted the patient to pass flatus, which was a cardinal point in the after-treatment of these cases. But Pearce Gould in questioning this special advantage aptly remarked that when a person is suffering from indigestion and flatulence, he does not button his trousers tightly up, but on the contrary makes everything loose.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

My readers have undoubtedly heard about Dr. Tuffier, professor *agrégé* at the Faculty of Medicine and surgeon of the Paris hospitals, and Dr. Doyen, of Reims, former house surgeon in Labbé's service, who is well known for his success in gynecological operations. There has been some trouble between them, and recently Dr. Doyen wrote an open letter to Dr. Tuffier, which he sent to various medical men in Paris. In it he accuses Dr. Tuffier of having taken the principal ideas carried out in a recent instrument invented by him and used them for his own instrument, which shows only slight modifications from the general plan of Dr. Doyen's invention.

This instrument was called a vasotribe by Dr. Doyen when he first brought it out, and he used it to crush the tissues surrounding the utero-ovarian and uterine arteries, so as to produce compression without ligation or use of artery forceps. In fact, it is a modified artery forceps, with very large jaws and a special groove, all of which was calculated with the greatest care by Dr. Doyen. Dr. Tuffier borrowed the general form of Doyen's instrument, added a new method of bringing the branches together—not so good perhaps as that of Doyen's, and resembling somewhat the basiotribe of Tarnier—and called the instrument by a new name, angiotribe. When Dr. Tuffier presented his invention to the Society of Surgery, he failed to mention Dr. Doyen's name in a sufficient manner, hence this letter.

Dr. Doyen not only upbraids Dr. Tuffier with withholding his name in this communication, but also accuses him in veiled terms of distorting his statistics by important omissions. Dr. Tuffier, it seems, though rather taken aback, is now preparing his answer. All this is a part of a sort of secret rivalry that exists between the surgeons of the Paris hospitals and the younger school of surgeons that has established itself in the provinces and will not bow down and worship the authority of the Paris *confrères*. It is in reality a form of the tendency to decentralization which has begun to show itself, and of which one manifestation consists in the creation of regional universities.

An excellent method indicated by Dr. Humm, of Brunswick, in cases of neuralgia of the head or cephalalgia, consists in the use of pulverizations of ether on the affected spot. These pulverizations, which can be carried out with an ordinary spray, should be kept up until the skin is covered with a white deposit. Sometimes a single pulverization is sufficient; in other cases two or three applications are necessary. These applications do not in the slightest degree hurt the skin.

Dr. Winkler, of Vienna, has come to the conclusion by his researches on the influence of amyl nitrite on animals that this agent when used pure is more harmful than when it is saturated with a gas such as oxide of carbon. By using the drug in this latter condition he did not notice any dyspnea or pulmonary edema such as is observed in some cases when the drug is employed pure. On trying it on himself he saw that there was dilatation of the smaller arteries, as indicated by congestion of the face, but he did not have that disagreeable sensation of fulness in the head such as is felt in most cases. He concludes that the drug well saturated would be advantageously used.

A new treatment of tetanus has been advised by Baccelli, and consists of subcutaneous injections of a solution of carbolic acid. An observation is furnished by Dr. Ziengo, in which the injections were begun eight days after the appearance of the first symptoms in a man having a complicated fracture of the forearm. A three-per-cent solution in distilled water was used, and as there were no signs of intolerance the dose was raised from thirty to fifty centigrammes. No symptoms of poisoning were noticed with the exception of a slight degree of albuminuria. In all there was injected 978 centigrammes of car-

bolic acid in twenty-seven days, and, as Baccelli recommends, morphine (four to six centigrammes) was given at first. The third day of treatment there was a slight amelioration, and nine days later the trismus had disappeared. Complete recovery seems to have been obtained on the twenty-third day. This is the thirty-second case of tetanus treated by Baccelli's method, and there has been so far only one death, which is certainly very encouraging, as the ordinary mortality of tetanus is seventy per cent. Moreover, though a few cases have been cured by Dr. Roux's and Borrel's treatment, a fresh series of cases terminated fatally; but this treatment seems to have been applied in desperate cases, therefore it is readily understood why the results are not more favorable.

The use of gelatin as a coagulant not only in wounds, surgical or accidental, but also as a means of producing coagulation in aneurisms, has given rise to much discussion as to its real action and its efficacy. Some authors have doubted whether gelatin, when absorbed by the cellular tissue, remains what it is at first, and whether its original properties can be relied on. Two fatal cases during the use of gelatin in aneurisms have seemed to throw some discredit on this new method, but then it has not been clearly shown that death resulted from anomalous coagulation. One thing is sure: coagulation by this method depends on the spontaneous coefficient of coagulation of the blood, and it would seem to be necessary to determine this approximately before using this method. On the other hand, death may supervene during this treatment without being due to the treatment. Dr. Fernet had a case of aneurism in his service and was on the point of applying this new method. The patient died the day before, and if he had been injected the very same day grave doubts might have arisen as to the safety of this treatment.

Mr. Carnot, house physician of the hospitals, has published a long article in the *Presse Médicale*, where he indicates in what cases his method may be used. Without being able to more than briefly outline his article, we may say that he uses the method in cases of hemorrhage, according to their being aseptic or septic. In the former case his ordinary solution may be used, which is as follows:

Gelatin, 50 parts by weight;
Chloride of calcium, 10 parts by weight;
Distilled water, 1000 parts by weight.

In some cases a small amount of glycerin may be added, as indicated by Dr. Gueyrat. In sterilizing these solutions the temperature of 115° C. should not be surpassed, and the solution should be used only a few degrees above its liquefying point. When this solution is used in a septic cavity such as the nasal fossæ or the vagina, as it would serve as an excellent means of culture, it should be antisepticized either by the use of corrosive sublimate or a small amount of hydrochloric or hydrofluoric acid, and the tampons laden with gelatin should be left as short a time as possible in contact with septic surfaces. Mr. Carnot is much more reserved in his appreciation of the use of gelatin internally or by subcutaneous injection. He has found that the use of a solution of chloride of calcium is efficacious in the treatment of gastric ulcer, when there is much hemorrhage.

Notes and Queries.

AGAINST PATENTING ANTITOXIN.

The following preamble and resolutions offered by Dr. Arch. Dixon, of Henderson, Ky., at the recent meeting of the Mississippi Valley Medical Association, were unanimously adopted:

Whereas, The general public, the medical profession, and the drug trade of the United States have long suffered extortion at the hands of foreign manufacturers of synthetic remedies; and

Whereas, Our lax and indulgent patent laws bestow a triple monopoly upon the process, the composition, and the name of chemical products for medicinal use, thus excluding every possibility of a healthy competition; and

Whereas, The same evil has been recently disclosed in the domain of biological medicine by the patent granted Professor Emil Behring and the Hoechst-Farbwerke on antidiphtheritic serum, a patent which could not be obtained in Germany, France, England, or Canada; therefore

Be it Resolved, By the Mississippi Valley Medical Association, that the seal of its condemnation be placed upon the unethical and unprofessional conduct of Professor Behring; that it is the duty of every member to renounce the use of the Behring serum; and that the American manufacturers who propose contesting the patent in the courts are entitled to the moral and substantial support of every American practitioner.

Resolved, That an earnest appeal be made to the members of the commission on the revision of our patent and trade-mark laws, appointed by President McKinley, and their assistance invoked for the modification of existing laws and the suppression of prevailing abuses.

Resolved, That a copy of these resolutions be sent to every medical journal in the United States and to the members of said commission, as follows: Hon. Arthur P. Greeley, Assistant Commissioner of Patents, Washington, D.C.; Hon. Peter Grosscup, Chicago; and Mr. Francis Forbes, New York City.

Resolved, That the members of this society be urged to write their congressional representatives at Washington and bespeak their support of any measures of relief ultimately proposed by the Commission.

—THE—

Therapeutic Gazette.

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Original Communications.

PERICARDIAL EFFUSION: ITS DIAGNOSIS AND TREATMENT.

BY H. A. HARE, M.D.,
Professor of Therapeutics in the Jefferson Medical College and Physician to Its Hospital.

However clearly the physical signs and symptoms of effusion into the pericardium or pleura may be described in the text-books, there probably does not exist a practitioner of experience who has not met with cases in which he felt grave doubt as to the presence of fluid. Further, there are few of large experience who have not found all the signs of pleural effusion present and then had their theoretical diagnosis brushed aside by the mortifying accident of having a "dry tap" when thoracentesis has been performed. Though the technical differences between the physical signs of pulmonary consolidation and pleural effusion, or cardiac dilatation and pericardial effusion, may be manifest in books, practical experience reveals that they are often misleading or so perverted as to be useless.

Of the question of pleural effusion nothing more need be said, but of that of pericardial effusion it is necessary to speak, first, because it probably occurs much oftener than it is diagnosed, and second, because it is

capable of jeopardizing the patient's life more speedily than a pleural effusion.

The occurrence of pericarditis is met with as a result or complication of acute rheumatism in about fifteen per cent of the cases in males and ten per cent in females. In this disease we are usually on the lookout for it, but in croupous pneumonia it is a much more frequent complication than is thought. We know that it is found in about twenty per cent of the cases which come to autopsy, and therefore it probably occurs with even greater frequency if the total number of cases is considered. It is a not infrequent complication of scarlet fever, and is met with as a result also of sepsis, tuberculosis, and even in chorea, in which disease Osler found it present in nineteen out of seventy-three autopsies. It also occurs in subacute or chronic maladies, notably in gout and Bright's disease, to such an extent that the French call it "*pericardite Brightique.*" When we recall the additional fact that it may occur in diabetes and as an extension process from pleuro-pneumonia, it is evident that it is a common condition. Of course, it is true that a very considerable portion of cases are not accompanied by effusion, but on the other hand it is the forms with effusion which are the most insidious, coming on without pain or other symptoms which would direct attention to the pericardium; and not until dyspnea, restlessness, and impaired circulation are manifested does the physician suspect pulmonary disease, or a pericardial effusion, and when he begins to diagnose its existence meets with contradictory signs and symptoms. It is true that we find as a rule distant heart sounds which are muffled and feeble, but such a condition of these sounds is met with in other states; that the apex beat is displaced, but so it is in pleural effusions and in chronic adhesive states following plastic or mediastino-pericarditis; that the area of cardiac dulness on percussion is deformed or enlarged, particularly to the right, but here again a very similar condition is met with in cardiac dilatation.

What, then, are the symptoms which may be considered pathognomonic? I doubt if there are any, and believe that we must rely upon the history of the case, the general symptoms, and the physical signs combined, plus experience.

Rotch has claimed that dulness on percussion in the fifth right intercostal space indicates fluid in the pericardium, but I have seen cases in which no fluid was present and in which dulness existed in this area; and this has been well pointed out by Broadbent, Lees, and Ewart, who have found that the dilatation of the heart accompanying rheumatism in children often gives this sign.

When are we to be suspicious, then, of this insidious and dreaded state? In the first place it should be recalled as a possibility in all of the diseases we have named when dyspnea and respiratory, plus cardiac, distress are manifest, and the very fact that these symptoms may arise in Bright's disease as the result of uremia as well as effusion should not be overlooked.

The diagnosis should, I think, be made certain by the insertion into the fifth right intercostal space of a long fine hypodermic needle carefully sterilized and already attached to a sterile syringe, with which some suction may be made if need be. The needle should be pushed in gently and directed anteroposteriorly, and as it enters the chest the syringe should be held very lightly between the forefinger and thumb so that it is as if balanced. If by any accident the heart is punctured even by the tip of the needle, the motion of the syringe at once reveals this fact and it can be withdrawn far enough to escape the heart wall. In other words, this is a single exploratory puncture, and while it deals with a part or organ which is supposed to be vital and vulnerable to a high degree, it is I think justifiable, first, because if the patient's symptoms are pressing he is in great danger from his effusion; second, because if the fluid is withdrawn his life may be saved; and third, because notwithstanding the fear of an injury of the heart being fatal, as a matter of fact it is an organ which permits the most extraordinary pathological changes without losing its function, and receives insults better than some other organs, like the liver and kidney. As a matter of fact death after a puncture of the heart results as a rule from the same causes as death due to a stab of a large artery, namely, in the sense of great loss of blood, or more commonly by the outpouring into the pericardium of blood which, while it is not sufficient to cause death by direct loss of blood, so presses on the heart that its action is arrested. Only when the coordinating center of Kronecker is punctured does death ensue, and as this can only be found after careful search with a sharp instrument when sought for in the bared heart, and as the septum is far removed from the area suggested for puncture, this accident could scarcely occur.

Experimental evidence and records of cases can be adduced in abundance in support of these assertions, and I have recently collected some of these facts in the THERAPEUTIC GAZETTE for 1898.

This exploratory puncture not only informs us of the presence of fluid, but of the position of the heart if any part is in the line of the operation. Sometimes the abstraction of small amounts of fluid will give relief, but if not, then a more competent aspirating apparatus can be used, such as is commonly employed in the operation of thoracentesis.

THE NON-OPERATIVE TREATMENT OF SUPRAPUBIC VESICAL FISTULÆ, ILLUSTRATED BY A CASE COMPLICATED BY A COMMUNICATING PELVIC ABSCESS.

BY CHARLES LESTER LEONARD, A.M., M.D.,
Assistant Instructor in Clinical Surgery and Instructor in Skiagraphy, University of Pennsylvania; Surgeon to the Southern Dispensary, etc.

Surgical teachings must always be understood to include the employment of antiseptic or aseptic methods. The effect of antisepsis will be noted in the difference in the results obtained in the following case:

Three months before she came under my care Mrs. G. had been operated on for a pelvic abscess. By some mischance the bladder had been opened and a suprapubic fistula had formed, through which both urine and pus were discharged, while there had been a continuous interchange of infection between the abscess, the bladder, and the surrounding pelvic cellular tissue.

The only treatment the patient had received before I saw her had apparently been based on the known tendency of such fistulæ to close spontaneously, but little had been attempted in antisepsis, and as a consequence the patient grew worse. Her general condition was very poor, while the condition of the perivesicular connective tissue resulting from the protracted infection can be imagined. The profoundly depressed condition of the patient and the extent of the infection, with the probability of renal involvement, made it seem desirable to defer operation until the patient's physical condition could be improved. She was therefore removed to a private hospital ward, where strict antisepsis could be maintained.

The first indication in the treatment was the prevention of any further interchange of infection between the bladder and abscess cavities.

Suprapubic siphon drainage was secured for the bladder in the following manner: A fine rubber drainage tube was threaded upon a silk ligature attached to an eyed probe. After the probe had been passed through the sinus into the bladder, and while it was held by the attached ligature, the drainage tube was slipped over it into the bladder. A suitably connected tube conducted the urine into a receptacle beneath the bed. Drainage tubes were passed into the abscess cavity and sinuses in a similar manner. A wall of granulation speedily formed between these various tubes and effectually prevented any further intercommunication.

The marked cystitis was treated by irrigating with hot boric acid solutions, and as soon as inflammation of the external genitalia, which had resulted from the continual flow of pus over that region, had subsided a catheter was passed and through-and-through irrigation was used daily. The urine was also sterilized and rendered acid by the administration of benzoic acid as employed by Emmet in the following formula:

℞ Acid. benzoici, ʒ ij;
Acid. borici, ʒ iij;
Aqua dest., f ℥ xij.

Misce. Sig.: One tablespoonful well diluted three or four times daily.

The general pelvic tenderness was rapidly decreased by the external application of a fifty-per-cent ichthyol ointment and the same drug used in vaginal suppositories.

The greatest difficulty experienced was in the treatment of the abscess, as antiseptics had to be employed that would not irritate the bladder, while it was impossible to get good drainage. The complete emptying of the abscess cavity and thorough antisepsis were secured by the employment of the official boroglyceride, which while acting as a non-irritant antiseptic also acted by its greater specific gravity, causing the displacement and expulsion of all the pus.

Although the progress towards recovery was at first slow, the combined local and constitutional treatment enabled the patient to make such progress that operation was again postponed.

As soon as the urine became normal and the sinuses ceased to discharge pus, the suprapubic drainage was removed and catheterization at regular intervals substituted. The drainage tubes in the sinus leading to the abscess cavity were not removed till the

urinary fistula had healed. This occurred promptly after the removal of the siphon drainage. The sinuses leading to the abscess cavity were then allowed to heal; their healing, however, did not take place as rapidly.

In all the sinuses the first drainage tubes introduced were necessarily small, but each gradually dilated the sinus in which it lay, when a larger one was introduced in the manner described.

The continued good health of the patient (now over two years) and the knowledge of the condition probably produced by the numerous pelvic adhesions have deterred the author from further operative interference, which unless new indications arise seems hardly justifiable.

The case is of interest as a demonstration of the relief that proper antiseptic measures can afford in cases where suppurative disease has so depressed the system and devitalized the tissues that operative interference is hazardous and inopportune. It also illustrates the fact that conservative antiseptic surgery, in certain instances, is capable of assisting Nature to accomplish cures where radical operation would certainly be attended by failure; and further, that asepsis or antisepsis is essential to the spontaneous closure of suprapubic vesical fistulæ.

1930 CHESTNUT STREET.

THE INHIBITORY INFLUENCE OF FREE OXYGEN ON THE GROWTH AND MULTIPLICATION OF TUBERCLE BACILLI; AND THE TREATMENT OF TUBERCULOSIS WITH THE SYRUP OF IRON CHLORIDE—AN EXPERIMENTAL STUDY.

BY GEORGE W. WELD, M.D.,
New York.

In treating the various forms of anemia at the Bellevue Hospital Dispensary in the spring and summer of 1892 I succeeded in obtaining, in a period covering four months' time, twenty-five cases. These cases embraced: (1) simple anemia, or where both the corpuscles and hemoglobin are diminished; (2) chlorosis, or where the corpuscles are normal and the hemoglobin diminished.

The result was the usual increase of corpuscles and hemoglobin in the blood and a distinct improvement in the general health of each individual patient.

Attention is specially directed, however, to only one of the above cases, viz., a case of anemia with phthisis, in which the treatment consisted in the administration of the syrup of iron chloride in large quantities, with no other treatment except a proper consideration for the digestive tract.

The case referred to is as follows:

April 29, 1892. L. O., female; American; aged twenty; hemoglobinometer registered 32. Anemia pronounced. Sputum shows tubercle bacilli. Physical examination reveals dulness on percussion over left lobe, associated with crepitant râles, bronchial voice, and high-pitched respiration. Ordered syrup iron chloride, half an ounce three times a day.

May 13. No apparent improvement; complains of pain in chest, and slight constipation. Ordered cascara sagrada, and increased iron to one ounce three times daily.

May 18. Appearance somewhat improved, but complains of pain in the chest. Iron increased to one and one-half ounces three times a day.

June 1. Patient feels stronger; no constipation nor irritation of the stomach. Hemoglobinometer registers 48, an increase of 18 points in thirty-three days.

June 15. Hemoglobinometer registers 55; patient feels better; appetite improved. The iron was now increased to two ounces three times a day.

July 8. Appearance very much improved; complexion good. Complains of cough, which is attributed to cold contracted on rainy day. Hemoglobinometer registers 68. Iron increased to 2½ ounces three times a day.

July 20. Hemoglobinometer registers 70. Weather hot and sultry. The patient has gained in weight 7½ pounds since April 30. Sputum reveals bacilli, but scattering and diminished in number.

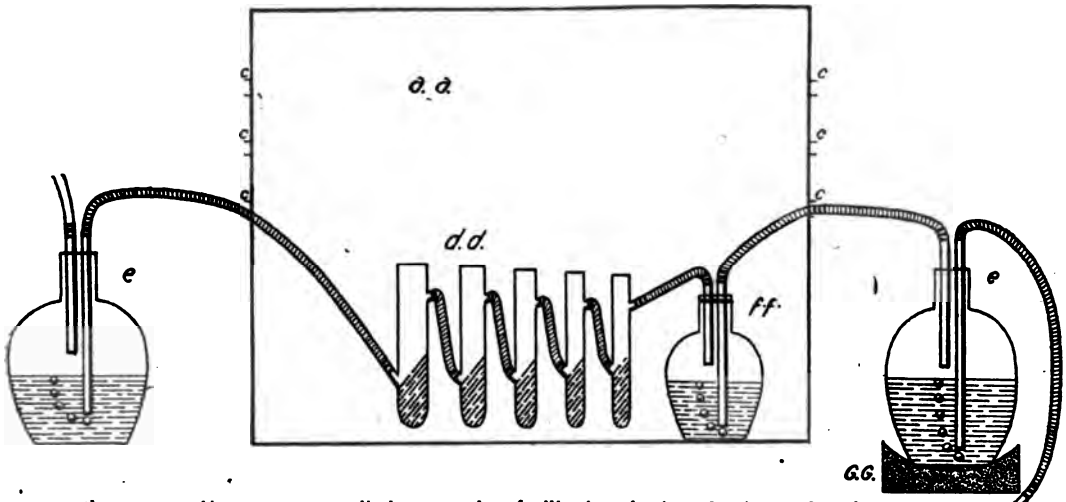
July 29, nine days after, I sailed for Europe and was absent for a period of six months. I have never seen the patient since.

What caused the improvement in this particular case? The woman's environment was anything but favorable, and such that hygienic measures were out of the question. Did the ingestion of the iron stimulate nutrition and assimilation, or check tissue waste or promote tissue repairs? Did the increase of the red blood-corpuscles and the hemoglobin excite intraorganic oxidation and fortify the lung tissue against the onslaught of the tubercle bacilli?

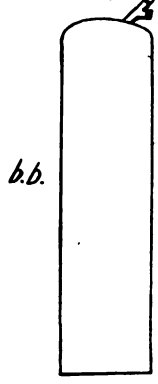
These thoughts led me to experiment to ascertain, if possible, what the action of free oxygen might be on a growing culture of tubercle bacilli in the laboratory. To this

end I had manufactured a special thermostat which presented on each side a series of tubes for the purpose of introducing and getting rid of the oxygen gas. This, with wash-bottles, and a series of test-tubes of original design, completed the outfit.

The accompanying diagram will show how the experiments were conducted.



aa, thermostat; *bb*, oxygen gas cylinder; *cc*, tubes facilitating the introduction and outlet for the oxygen; *dd*, test-tubes, with culture media and growing cultures; *ee*, wash-bottles outside thermostat; *ff*, wash-bottle inside thermostat; *GG*, sand-bath, temperature of the blood.



These experiments came under the observation and supervision of Professor Crookshank and his able assistant, in King's College, London; Professors Prudden, Cheeseman, and Hodenpyl, at the College of Physicians and Surgeons, New York; and Professors Loomis and Buxton, at Loomis's Laboratory, New York. It seems unnecessary, therefore, to make any comment on the technique employed in the experiments. Suffice it to say that everything was done that was suggested by these eminent gentlemen to render the experiments free from error; and I take this occasion to thank them for their assistance and courtesy and painstaking efforts to render the experiments accurate.

The following is a *résumé* of the experiments as conducted at King's College:

Series A.—Five test-tubes containing nutrient media (agar-agar glycerin) inoculated with virulent tubercle bacilli November 22, 1892. A slow current of warm oxygen gas was allowed to pass over the same for a period of twenty days.

In each tube the growth of the culture was completely retarded; the consistency of the cultures appeared to be somewhat mealy, differing from normal cultures, and they did not appear to adhere to the surface of the nutrient media; the color was changed to a reddish brown. Other nutrient media inoculated with these cultures did not take. The culture under the microscope showed that the organism was not destroyed, but was found less difficult to stain.

When a slow current of warm oxygen gas is passed through a bottle containing growing tubercle bacilli for a period of three days an apparent disintegration is observed, and a white precipitate is seen at the bottom of the bottle. To ascertain whether the cultures had lost their pathogenic properties, three rabbits were inoculated; none of them showed any symptoms of tuberculosis.

Similar experiments were made at the College of Physicians and Surgeons, New York.

Five tubes containing nutrient media were inoculated with tubercle bacilli April 28, 1893, and submitted each day to a slow current of warm oxygen. The tubes were placed in the thermostat April 28, and oxygen applied May 2, four days later, for a period of twenty-four hours, and on May 5 for thirty minutes; May 6, one hour and fifteen minutes; May 8, one hour and forty-five minutes; May 9, one hour and fifteen minutes; May 11, two hours; May 12, three hours; May 13, two hours; May 17, thirty minutes; May 20, two hours; May 22, two hours; May 23, two hours; May 24, two hours; May 25, two hours. Covering a period of thirty days the tubercle bacilli we

under the influence of the gas forty-six hours and fifteen minutes, or an average of about an hour and a half each day. The appearance of the tubercle, regarding both color and consistency, was similar to the bacilli submitted to a continual current of oxygen for a period of twenty days.

The experiments seemed to show that while tubercle bacilli are aerobic, an excess of oxygen inhibits their growth and multiplication. The question arises, then, what is the exact relation of oxygen, and in what proportion to the proper nutrition and development of this organism? To what degree is an excess of the gas germicidal? To what extent does it inhibit their growth; and how much, if any, does it decrease their virulence?

The following experiments were made at the Loomis Laboratory, New York:

Nutrient media were inoculated with tubercle bacilli February 13, 1896. Oxygen (four tubes) started February 28. Common air (four tubes) started February 28. Control (three tubes), *i.e.*, normal conditions for growth.

February 28, oxygen applied 30 minutes, common air 30 minutes; March 5, oxygen 40 minutes, common air 40 minutes; March 7, oxygen 45 minutes, common air 45 minutes; March 9, oxygen 1 hour and 15 minutes, common air 1 hour and 15 minutes; March 12, oxygen 1 hour and 15 minutes, common air 1 hour and 15 minutes; March 13, oxygen 60 minutes, common air 60 minutes; March 17, oxygen 60 minutes, common air 60 minutes; March 19, oxygen 60 minutes, common air 60 minutes; March 22, oxygen 60 minutes, common air 60 minutes; March 25, oxygen 1 hour 30 minutes, common air 1 hour 30 minutes; March 28, oxygen 60 minutes, common air 60 minutes. Total, 64 days in thermostat; subjected to influence of oxygen gas 34 days 695 minutes, or daily average of about 20 minutes.

Admitting that free oxygen and ozone destroy the tubercle, what practical value have the experiments in connection with the treatment and cure of the terrible disease—tuberculosis? With our present knowledge of the disease, probably no value whatever.

One of the most prominent specialists of lung diseases in New York, Dr. Chas. E. Quimby, recently made a statement to the effect that he seldom came across a patient suffering with the disease who was not susceptible to improvement. Dr. Quimby divides tuberculosis into two conditions: (1) tubercle; (2) the septic condition.

The *tubercle*, or rather the millions of tubercle bacilli which cause the destruction of lung tissue, and the *septic condition* are so securely encased in healthy tissue as to be apparently protected from the influence of any germicidal agent. In fact, the opinion has been expressed by one authority that if the blood could be impregnated with an antiseptic up to nearly the point of corpuscular ruin it would probably flow through the lungs without causing the death of one bacillus.

The "second condition" of the disease would appear, then, to be the only condition that admits of any rational treatment.

The ingestion of iron oftentimes increases the desire for food and the ability to dispose of it, and serves as a permanent tonic. In the case which I have mentioned the patient gained 7½ pounds in weight and 28 points in hemoglobin from April 29 to July 20, or a period of eighty-two days. The corpuscles in this case were not counted, but it is fair to presume their number was largely increased. The quantity of iron the patient was taking when she paid her last visit was 2½ ounces three times a day, or 250 minims of the tincture of the chloride of iron of the U. S. Pharmacopœia.

There are so many preparations of iron on the market that it is difficult to say which one possesses the greatest merit. The preparation mentioned, viz, the syrup of iron chloride,* is the old-fashioned tincture of the iron chloride slightly modified, each ounce of which contains forty minims. It is easily borne by weak stomachs and can be taken in large quantities without deranging the *digestive* tract—a great advantage over many other preparations. The form of iron that is to be employed, however, to improve nutrition, increase the hemoglobin and the red corpuscles, must be left of course to the judgment of the attending physician.

REPORT OF 78 CASES OF PULMONARY TUBERCULOSIS TREATED AT THE WINYAH SANITARIUM, AT ASHEVILLE, N. C., IN 1898, WITH WATERY EXTRACT OF TUBERCLE BACILLI.

By Karl Von Ruck, M.D.

In making the following report I wish in the first place to disclaim any possible impression that the results recorded are attributed by me entirely to the specific remedy

*Syrup iron chloride, Parke, Davis & Co.

employed, inasmuch as I appear to have been misunderstood by some authors, who in referring to my previous report of 182 cases,* suggested that the favorable climate of Asheville, and other advantages which my patients were afforded, have no doubt also had their equal influence in obtaining my results.

Had my reviewers read my report carefully, they would have found the following sentence immediately below the summary of the results: "This report is, however, not made with a view of convincing my hearers of the great value of one particular remedy employed, and I am fully aware that a variety of favorable influences has contributed to these results."

I am in exactly the same position at this time, having never been willing to do anything but the best that I felt capable of in the management and treatment of my patients, and in the treatment of the present series the climatic treatment, the dietetic, hygienic and hydropathic measures, the institution management and control of the patients, the use of the pneumatic cabinet, of inhalations and symptomatic medicinal treatment, were all deemed essential and were employed as required, while the specific medication was administered.

If, however, we wish to show the influence of the specific remedy (in the present instance of the Watery Extract of Tubercle Bacilli) we can perhaps do this with sufficient accuracy for all practical purposes by examining the results obtained in this and in other institutions, without the use of specific germ products, and which show apparent recoveries in from ten to twenty per cent only; the difference in the percentage depending no doubt upon the stages in which the cases came under treatment, and also upon the fact that many patients leave off their efforts to get well, when they are only more or less improved, hoping that no further relapse will thereafter occur.

Many such unfinished cases necessarily enter into reports from institutions, and in all my series, with and without specific treatment, still better results would, no doubt, have been shown, had the improved and greatly improved cases remained long enough under treatment to accomplish the best attainable results.

The evolution of specific medication for infectious diseases has made enough progress, at this time, to justify the serious and thoughtful attention of medical men, and supplies a most interesting and gratifying chapter in the history of medicine of the closing century.

In tuberculosis this is only less apparent to those who lose sight of the limitations that all remedies must have in their power of removing pathological processes, which frequently attain a degree from which recovery or even improvement is absolutely impossible.

The pathological changes of tubercle are no exception to this general truth, as we recognize it, for instance, in syphilis, where stages are often reached in which specific medication is absolutely useless.

During the life of the patient it may be difficult and at times impossible to determine the exact pathological changes present, and so it comes that in practical medicine we often attempt the accomplishment of that which a full knowledge of the true pathology in the particular case would show us to be useless.

The use of bacterial products as specific remedies for tuberculosis had its origin with Koch's Tuberculin in 1890, and all the modifications which have since been brought forward were derived from the fluid upon which the specific germs had been grown.

It was believed that in this fluid certain proteid substances resulting from the tubercle bacilli, either as secretions or excretions, or both, were accumulated, and that the peculiar influence of this fluid depended upon these accumulated proteids.

In the meanwhile it was suggested that the tubercle bacilli must necessarily contain this principle within their bodies, but all efforts for its extraction proved signal failures.

To test this assumption, dead tubercle bacilli were used in animal experiments, but the regular formation of abscess at the point of injection, and the occasional occurrence of spurious tubercles in the body of the experiment animal, showed plainly that this method of treatment could not be made use of in the human subject, though the animal experiments gave indication that the germs did contain the curative substances desired.

In the further efforts to obtain this curative substance directly from the tubercle bacilli, various methods were resorted to, especially by Professor Koch, who, in April, 1897, announced his "Tuberculin R," with which he believed the desired object had been attained.

This product, however, has since been found to be an emulsion of fragments and

* THERAPEUTIC GAZETTE, May, 1896.

of whole tubercle bacilli, which, when the remedy is filtered through porcelain, remain upon the filter; and it has been further shown that with this residue virulent infection can be produced.

The fact that the curative substances could not pass through a porcelain filter was acknowledged by Koch in his paper, and should have been sufficient to establish that a true solution of the germs was not present. The subsequent withdrawal of "Tuberculin R" by the manufacturers was undoubtedly on this account.

In my own efforts to obtain the desired solution, I succeeded, in February, 1896, by the method heretofore published,* and which I may again describe for the benefit of those to whom my previous publication is not accessible:

"The tubercle bacilli are filtered out of the rapidly growing and highly virulent culture. After washing with distilled water for the removal of the remains of the culture fluid, they are dried in a vacuum desiccator. Next they are powdered in an agate mortar and then extracted with sulphuric ether. This extraction removes the fats. They are again dried and powdered as before, and their further extraction takes place in sterilized distilled water over a warm bath with a temperature of 120° F. The proteids becoming dissolved in the distilled water, the fluid is then decanted and filtered through porcelain, when finally the amount of proteids is determined and the preparation standardized to a certain per cent."

Reasoning backward, and recognizing that all the various tuberculin preparations have shown a certain degree of clinical value, it seems quite probable that proteids of tubercle bacilli entered into all of them during the growth of the culture, and also into some of them during the process of manufacture.

The amount of proteids was undoubtedly small and variable, and was associated with the organic substances from the culture fluid.

The Watery Extract as produced by me, and into which absolutely no culture fluid enters, is free from organic substance and other impurities. It is a perfectly pure solution of the germs only, and being filtered through porcelain is absolutely free from any germs or fragments thereof.

For its preservation a fraction of a per cent of phenol is added, which in no wise alters its clinical value.

*THERAPEUTIC GAZETTE, June, 1897.

For convenience of administration and to avoid mistakes in making dilutions, we prepare three different strengths of the solution: No. 1 (white label) contains $\frac{1}{100}$ of one per cent of the solid extract, free from water; No. 10 (yellow label) contains one-tenth of one per cent; and No. 100 (red label) contains one per cent of the extract.

The treatment of cases is begun with No. 1 (white label), and the initial dose is one-tenth of one cubic centimeter, or $\frac{1}{1000}$ of a milligramme of the anhydrous extract. From this dose we increase daily by one-tenth of a cubic centimeter, so that on the second day we give two-tenths cubic centimeter, the third day three-tenths, the fourth day four-tenths, and the fifth day five-tenths of one cubic centimeter. The latter dose equals $\frac{1}{200}$ of a milligramme of extract.

I usually repeat five-tenths of a cubic centimeter of No. 1 several times, and then I again increase by tenths, until the daily dose is one cubic centimeter. From now on it is more convenient to use solution No. 10 (yellow label), one-tenth of a cubic centimeter being equal to one cubic centimeter of No. 1.

Repeating each dose once or twice we increase by tenths or twentieths of a cubic centimeter until half of a cubic centimeter of No. 10 is given as the daily dose. I find that this dose is quite active—*i.e.*, it shows an unmistakable influence over tubercular processes—therefore the further increase can be more gradual, and as the doses become still larger the intervals between the injections are first increased to thirty-six hours and later to forty-eight hours.

The further increase of one-tenth cubic centimeter every second dose can be made with the same solution, or we can now use solution No. 100 (red label), of which one-tenth cubic centimeter is equal to one cubic centimeter of No. 10, or to ten cubic centimeters of No. 1.

It is, of course, a matter of choice with those who wish to use this preparation to make their own dilutions, either from No. 10 or No. 100, but as the doses are increased the solutions No. 10 and No. 100 are desirable, to obviate the necessity of bulky injections.

Koch, presuming that he had a true solution, stated at the close of his paper that it was the end of possible improvement of specific remedies for tuberculosis and that nothing better could be produced. However this may be, I can confirm his successful animal

experiments alike by the use of "Tuberculin R" and by the use of my Watery Extract of Tubercle Bacilli, in the actual cure of guinea-pigs, as well as in the obtaining of a considerable degree of immunity; that is to say, animals protected with the Watery Extract of Tubercle Bacilli and with like doses of Koch's "Tuberculin R" proved refractory to virulent infection, while the control animals developed the disease and died.

In the same paper in which Professor Koch announced his new tuberculin, he also gave the suggestion of producing a serum of possible value by immunization of animals with that preparation.

This was undertaken in my laboratory immediately, and on the 3d of May, 1897, the immunization of four goats was commenced. The immunization was continued in two of the animals until October, and in the remaining two until November. Two animals received Koch's "Tuberculin R," from one to seventy cubic centimeters daily, and two received like doses of my Watery Extract of Tubercle Bacilli for the same length of time.

With the serum, taken at different stages of immunization from these animals and at various periods after the supposed immunization was completed, we endeavored to protect guinea-pigs against infection, and to treat them after infection. In the method for protection we followed that of Fisch, who in October, 1897, claimed satisfactory results from his serum made by using "Tuberculin R." All these animals developed and eventually died of tuberculosis, and no appreciable result was obtained in immunization or treatment.

My results being so strikingly at variance with those of Dr. Fisch, though carried out with the greatest of care, I repeated the experiments; this time, however, with the serum made by Dr. Fisch himself, and purchased from his laboratory.

On April 5, 1898, the method of protective treatment as published by Dr. Fisch was begun with animals Nos. 305, 306, 307, 308, 309, 310, and 311, and continued for one month, when they were all infected by implantation of tissue from a fresh tubercular spleen. In addition, we infected for control animals Nos. 312, 313, 314, and 315.

The injections of Fisch's serum were continued in Nos. 309, 310, and 311, all with the following results:

Animal No. 305, protected with Fisch's serum: Original weight 765 grammes, at death 512 grammes; died August 22. Post-mortem showed point of infection a caseous mass, with perforated skin; glands enlarged, mostly caseous; spleen and liver enlarged, full of small tubercles; few tubercles in lungs; extensive pneumonic consolidation. Microscopical: tubercle bacilli in all tissues examined.

Animal No. 306, protected with Fisch's serum: Original weight 500 grammes, at death 412 grammes; killed September 16. Post-mortem: point of infection a caseous mass, skin perforated. Lungs showed few tubercles, many in spleen and liver; glands caseous. Microscopical: many tubercle bacilli in all tissues examined.

Animal No. 307, protected with Fisch's serum: Original weight 490 grammes, at death 405 grammes; killed September 16. Post-mortem: point of infection a caseous mass, ulcerated; glands enlarged, many caseous and soft; liver, spleen, and lungs full of tubercles, some of them caseous. Microscopical: many tubercle bacilli in all the tissues examined.

Animal No. 308, protected with Fisch's serum: Original weight 500 grammes, at death 440 grammes; killed September 16. Post-mortem: point of infection caseous; glands enlarged, some caseous and soft, others fibroid; liver and spleen enlarged, and contained caseous and fibroid tubercles; adrenals tubercular. Microscopical: tubercle bacilli in all tissues examined.

Animal No. 309, protected with Fisch's serum and subsequently treated with the same in doses of 0.3 to 0.5 cubic centimeter every other day until death: Original weight 516 grammes, at death 410 grammes; killed September 16. Post-mortem: point of infection, caseous mass and open ulcer; few tubercles in peritoneum; liver and spleen greatly enlarged and full of tubercles; many tubercles in lungs. Microscopical: tubercle bacilli in all tissues examined.

Animal No. 310, protected and treated same as No. 309: Original weight 470 grammes, at death 440 grammes; killed September 16. Post-mortem: point of infection, fibroid tubercle; glands enlarged, few caseous, most of them fibroid; liver and spleen greatly enlarged, full of miliary tubercles; lungs tubercular. Microscopical: tubercle bacilli in all tissues examined.

Animal No. 311, protected and treated same as Nos. 309 and 310: Original weight 500 grammes, at death 430 grammes; killed September 16. Post-mortem: point of infection, caseous ulcer; glands enlarged, fibroid

and caseous; liver and spleen enlarged, full of tubercles; lungs slightly tubercular, several caseous masses. Microscopical: many tubercle bacilli in all tissues examined.

Animal No. 312, control, infected (but not protected or treated): Original weight 520 grammes, at death 460 grammes; killed September 15. Post-mortem: point of infection caseous; few tubercles in peritoneal adhesions; glands enlarged, many of them caseous; liver and spleen enlarged, and contained many miliary tubercles; few isolated tubercles in lungs. Microscopical: tubercle bacilli in all tissues examined.

Animal No. 313, control: Original weight 620 grammes, at death 580 grammes; killed September 15. Post-mortem: point of infection caseous, surrounded by recent tubercles; most glands fibroid; liver and spleen greatly enlarged, full of miliary and a few caseous tubercles; numerous tubercles in lungs; adrenals enlarged, tubercular. Microscopical: tubercle bacilli in all tissues examined.

Animal No. 314, control: Original weight 570 grammes, at death 550 grammes; killed September 15. Post-mortem: point of infection, hard indurated mass; glands enlarged, most of them fibroid, few caseous; liver and spleen enlarged, full of tubercles; lung, few fibroid nodules. Microscopical: tubercle bacilli in all tissues examined.

Animal No. 315, control: Original weight 510 grammes, at death 460 grammes; killed September 15. Post-mortem: point of infection, caseous mass; glands enlarged, some hard, some caseous and soft; liver, few small tubercles; spleen enlarged, and contained many miliary tubercles; lungs, few fibroid tubercles; adrenals enlarged, caseous. Microscopical: tubercle bacilli found in all tissues examined.

Animal No. 316, control: Original weight 470 grammes, at death 420 grammes; killed September 15. Post-mortem: point of infection caseous; glands enlarged and hard; liver greatly enlarged, and contained large caseous tubercles; spleen enlarged, many small tubercles; lungs, few caseous tubercles. Microscopical: tubercle bacilli in all tissues examined.

These results are entirely in conformity with those from the use of my goat serum, and I presume that Dr. Fisch killed his animals entirely too soon—namely, a month after infection, a period ordinarily insufficient for the development and recognition of tubercle.

I have previously published* some of my experimental work with Watery Extract of Tubercle Bacilli, and with other products derived from the culture fluid upon which tubercle bacilli had been grown.

More recently I have made another series of experiments with watery extract of tubercle bacilli, and with Koch's "Tuberculin R," which, though not entirely completed, appear to confirm my previous statement that these preparations are curative as well as protective.

Clinically, I have had the aid of several colleagues in endeavoring to find the best method of dosage, selection of cases, etc., and I am especially indebted to Dr. Charles Denison of Denver, and also to Dr. J. Longstreet Taylor of St. Paul, and Dr. John H. Williams of Asheville, for valuable assistance, they also having obtained valuable results from my preparation.†

In the study of the effect of the remedy I have found that it is also capable of producing reactions in the local tubercular area, which can be readily observed with the eye in tubercular infiltration in the larynx.

In the lungs also we note evidence of congestion in tubercular localities, and particularly in the outlying areas where more recent tubercles are present. Singularly, and contrary to the experience with crude tuberculin and its modifications, these local reactions are not usually accompanied with fever; on the contrary the temperature is frequently lower than before.

I have elsewhere‡ recorded my experience, which I believe justifies me in saying that any proteid injected subcutaneously in sensible quantities is liable to produce fever. Blood-serum, solutions of egg-albumen, beef extract, beef peptone, and nuclein, all produce a rise of temperature after their hypodermic injection, and to all of these toleration can be established by beginning with small quantities, which when thereafter gradually increased even to very large doses do not disturb the temperature.

These substances have, however, no visible or apparent effect upon tubercular tissues,

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* *Cincinnati Lancet-Clinic*, Feb. 8, 1898.

† Dr. Williams kindly put at my disposal the clinical data of twelve cases treated by him with my Watery Extract and discharged during the past year. They comprise seven early stage cases, all of which were discharged as cured; three more advanced stage cases, one of which was discharged cured, and two cases greatly improved; two cases in the third stage, of which one was cured, and one case (treated only three weeks) grew worse.

‡ *New Orleans Medical Journal*, July, 1898.

whether fever follows their injection or not —that is to say, we do not note the selective influence by which only tubercular tissues become injected and turgescent. On the contrary, all we observe is the fever, with its general disturbance of the well-being of the patient.

For the production of fever with the various organic substances mentioned, much larger quantities than the amount contained in the maximum dose of the Watery Extract are necessary, and the non-occurrence of fever reactions from Watery Extract to doses of from $\frac{1}{1000}$ to three or four milligrammes of organic substance may, perhaps, be thus explained.

In all my cases I have so gradually increased my doses that I have seen no unduly prolonged local effect, and I believe that such gradual increase is for the present the best and safest method of procedure. When a distinct local effect is produced, as evidenced by the temporary local congestion of the tubercular locality, I allow this to subside before I give another dose, which is usually the case in twenty-four to thirty-six hours. When the effect is unduly prolonged I reduce the next dose, and when no effect is produced I increase the dose.

Many physicians will of course be unable to observe and watch these local effects for a variety of reasons, and in such instances a very gradual and conservative increase is the best and safest course to pursue. A number of colleagues to whom I have supplied the remedy within the last eighteen months have been so circumstanced that no control as to reactions was possible, but they have obtained excellent results, nevertheless, though the treatment was somewhat prolonged.

From the reports that have reached me from such colleagues and from my own observation, I believe I am entirely safe in saying that if the increase is slow enough so that not more than 0.3 cubic centimeter of No. 10 solution is reached the first month, and the gradual additions to this dose do not exceed 0.5 cubic centimeter in subsequent months, no fear of undue reactions need be entertained, and the result will prove entirely satisfactory.

How satisfactory this may be, and how much visible improvement may be noted, will depend upon the pathological changes present, and also upon the additional care and treatment the patient receives. The latter will be more a factor the more advanced the case may be in destructive process, suppuration, and softening in caseous localities, and in complications. In such cases the cough, fever, heart action, diet, and general conduct of the patient need careful attention and supervision.

I shall be glad at all times to supply as far as I have them reprints of articles on these and other subjects, in which I have recorded my experience.

It is chiefly in early and middle-stage cases, free from absorption fever, with a fair degree of nutrition, and free from serious complications, that I have obtained my best results, and I would urge those who desire to use the remedy under consideration to select only such cases, at least for a beginning.

In the observation of the involved lung portions and other tubercular localities, while the treatment is administered, I have rarely failed to note unmistakable changes for the better within the first month or six weeks, particularly in recent extensions to adjacent lung portions and to the opposite lung, and in recent infiltrations of the larynx.

Removable tubercles in the lung do not, however, as a rule reveal their presence by a dull percussion note unless the alveoli and bronchioles are entirely obstructed by their presence; nor do such tubercular deposits ordinarily cause bronchial respiration, much less coarse râles and rhonchi. On the contrary, the changes induced by purely tubercular deposits, especially when of recent origin, are delicate, and cause scarcely perceptible or but slight changes on percussion, while auscultation shows a weak, feeble respiratory murmur, which may be more or less rough on inspiration, when we also may note very fine crepitation. Later, after some months, the reactionary inflammatory changes in tissues, where tubercle has been formed, cause increase of connective tissue, and now the percussion changes become more marked while the respiration may become harsh and bronchial.

Many practitioners who are not in constant practice may have difficulty in making out these delicate changes, and if they fail to recognize them when the patient comes under treatment they will of course not note their disappearance later on. However this may be, they should not expect that the physical symptoms due to fibroid changes, caseous pneumonia, thickened pleura, and such like, will clear up and disappear under the use of this remedy, and if they cannot recognize the less pronounced changes they must be content to note the more general improvement

which always follows, unless in badly selected cases in which the irremediable conditions control the clinical course entirely.

Most cases coming under my care, even in advanced stages, present more or less recent extension of the tubercular disease in the lungs, which are destined to follow a like, but as a rule a more rapid and less favorable, course than the earlier deposits have done.

It is not a matter of indifference whether these new deposits shall be allowed to remain and to undergo degenerative changes, or whether they shall be removed. If such cases are not already doomed on account of other irremovable conditions, the clearing up of such deposits removes a serious and often insuperable hindrance to their improvement, and to the arrest of the disease. This the Watery Extract of Tubercle Bacilli will do, even in advanced stages, when the patient's nutrition is still fair.

Coming now to the result of the seventy-eight cases treated and discharged, I may emphasize again that the treatment was administered under ideal conditions in every respect, and I wish to again record my faith in the helpful influence of climate, and the advantages which a well conducted institution affords. The series is too long to record individually in a tabulated form, as such a table would occupy too many of the valuable pages of this journal.

The description of the cases appears in the report of the Winyah Sanitarium for 1898, and is at the disposal of any physician who desires it.

SUMMARY OF CASES.

Class.	No. of cases treated.	Average months treated.	Recovered, disease arrested.	Per cent.	Greatly improved.	Per cent.	Improved.	Per cent.	Grown worse or died.	Per cent.	Corresponding to
A	20	3	20	100	0	..	0	..	0	..	1st stage.
B	37	4	27	73	7	19	3	8	0	..	2d stage.
C	21	4	3	14.2	9	43	7	33.3	2	9.5	3d stage.
Total	78	3.75	50	64.1	16	20.5	10	12.8	2	2 6	all stages

The same classification has been retained as in previous reports. The cases which are designated as "recovered" on their discharge showed no physical symptoms in the chest whatever. Where there were still evidences of the previous inflammatory process or healed cavities, the term "disease arrested" was added, which, of course, is not indicative of an absolute recovery, but relative only, the best that could be expected under the circumstances.

Among the seventy-eight cases were fourteen with tuberculosis of the larynx. In nine instances of more or less extensive tubercular infiltration of the larynx the infiltration disappeared under treatment in four, was greatly improved in two, and improved in three.

The stage of ulceration was reached in five cases. In one the ulcer was healed; in two others, nearly healed on their discharge; while one case was improved and one grew worse.

In addition to the specific remedy the usual local applications were made, but no curettement or other surgical procedures were employed.

The general improvement in this series of cases may be inferred from the almost uniform gain in weight, all patients but two having shown an increase over their weight on admission, and in many instances the patient was losing more or less rapidly on admission. In Class A, all patients gained weight, from 2 to 22 pounds, averaging 11 pounds each. In Class B, all patients gained from 2 to 44 pounds, averaging nearly 13 pounds each. In Class C, nineteen out of twenty-one patients gained from 1 to 25 pounds, averaging 10½ pounds each.

A comparison of results obtained without specific treatment and with the various remedies employed was made in my last report; adding to this the seventy-eight cases reported here and treated with Watery Extract, the differences in results appear as follows:

COMPARATIVE TABLE OF RESULTS OBTAINED WITHOUT AND WITH SPECIFIC MEDICATION.

	Cases reported.	Recovered per cent.	Improved per cent.
Without specific treatment.	816	12.1	31.0
Treated with Koch's Tuberculin	379	35.5	37.5
Treated with Antiphthisin and Tuberculocidin	182	32.5	46.8
Treated with Tuberculin: purificatum (von Ruck)	166	43.4	39.2
Treated with Watery Extract of Tubercle Bacilli (von Ruck)	78	64.1	33.3

These results speak for themselves; they were obtained in the same institution and under the same conditions in all respects, and justify the conclusion that in the production of the Watery Extract of Tubercle Bacilli as prepared by me we have made another and most valuable step toward the desired end.

ASHEVILLE, N. C., Jan. 1, 1899.

TWO UNRECORDED CAUSES OF DERMATITIS.

By Anstruther Davidson, C.M., M.D.,
Clifton, Arizona.

Eczema venenata as observed in southern California is almost invariably produced by the well known and all too common poison-oak of the foot-hills and mountains. In the eastern and midland States other species of Rhus cause a similar, though probably more severe, disease.

It is generally well known that there are numerous other plants the handling of which produces in susceptible individuals more or less acute desquamative dermatitis, closely resembling that produced by the common poison-oak. Many writers have spoken of these, and in our text-books are detailed a large number of plants that are capable of producing more or less irritation when freely handled. To this increasing list I shall add two others that so far as I am aware have not been previously recorded.

M. D., an intelligent young lady of very fair complexion, one day informed me that while she was always somewhat susceptible to the ordinary Rhus poisoning she was still more susceptible to poisoning by *Solanum Xantii* Gray, the wild potato so common in southern California. As the lady in question possesses a good knowledge of botany I had no doubt whatsoever of the truth of her observation, and asked her to kindly present herself at the office when next affected.

On June 15 she presented herself at my office with face and wrists almost completely covered with acute vesicular dermatitis. On the previous evening, while hitching her horse to a tree, she had stooped down to examine a flower. As the hour was late and the flower indistinct, she stooped low, and her face may have touched the plant, though she feels almost certain she did not come in contact with it, as on recognizing her old enemy she quickly withdrew. That same night pain, itching, and swelling began, and next day the face was in the first stage of vesicular eczema, with marked puffing of the eyelids. Two days after the face looked worse, but from that time on it gradually improved, passing through the regular stages of vesication and desquamation to final resolution. While the facial appearances in general closely resembled those produced by poison-oak, there were superadded all the more evident symptoms of belladonna poisoning. The pulse was rapid; on account of the extreme dilatation of the pupil she was unable to face a bright light; accommodation was paralyzed, reading being impossible. The dilatation of the cutaneous vessels of the face added that purplish look so characteristic of belladonna poisoning. The dilatation of the pupil persisted until the 18th. This time she informs me she has had no trouble with her heart, but with all of her previous attacks the heart weakness was so apparent that she was compelled to remain in bed for several days.

Here we have dermatitis produced by a member of a plant family noted for the poisonous qualities of its fruit and foliage, but not so far as I know locally injurious to the individual handling the plant. What produced the dermatitis in this case I do not know, nor can I explain the symptoms of belladonna poisoning otherwise than by saying the patient in question was peculiarly sensitive to the effects of belladonna.

The plant under review, as its name indicates, belongs to the Solanaceæ, a family characterized by the presence of a number of potent and beneficial alkaloids, such as dulcamarine, atropine, hyoscyamine, lycine, and duboisine. How many of these alkaloids other than atropine exist in our plant I have no means of determining. None of the Solanums that exist in California are reputed poisonous. The very noxious *Solanum nigrum*, which in Europe proves so frequently fatal to children who eat the berries, is here represented by the variety *Douglasii*, and not only is it eaten with impunity, but actually with relish by thirsty children.

Another plant which frequently causes dermatitis is our common and much appreciated fig of cultivation. Among the fig-pickers, especially if children, cases of dermatitis are far from rare. I have seen a few individuals who are so susceptible to injury from the fig that they carefully avoid picking the fruit from the tree. Eating figs already plucked has no injurious effect, as the dermatitis produced is not, as in the poison-oak, due to the chemical irritants contained, but to the brittle hairs that cover the leaf, especially on its surface. In the act of picking the fruit these prickly hairs readily penetrate the flexor surfaces of the fingers and wrists, and in individuals with irritable skins a dermatitis follows in twenty-four hours, each hair having produced a minute papule with a small inflammatory area surrounding it. The dermatitis is probably produced by the mere mechanical presence of the bristle-like hairs,

as examination shows that the hair points are solid at the tip and that the basal part of the hair, which at an early stage is filled with fluid, is at the time of ripening of the fruit filled with air only. From the fact that children with their delicate and irritable skins most usually suffer from this form of dermatitis, one is led to presume that Eve when she adopted the leaves of the fig as the primary article of raiment must at least have passed the age of puberty.

The dermatitis produced by the hairs on the fig-leaf, I need scarcely add, is readily subdued by simple emollients.

THE OPERATIVE TREATMENT OF VARICOSE VEINS OF THE LEG.

By Edward Martin, M.D.,

Clinical Professor of Surgery, Women's Medical College; Clinical Professor of Genito-Urinary Surgery, University of Pennsylvania; Surgeon to the Philadelphia, St. Agnes, and Howard Hospitals.

In bringing up the subject of the operative treatment of enlarged veins of the lower extremity I have no intention of speaking of the etiology of this affection. Those who are interested in the various theories advanced to explain the relative frequency of varicosities of the leg I would refer to Dr. James J. Walsh's excellent paper, which has recently appeared in the *University Medical Magazine.* My own belief is that this disease is in many cases dependent not so much on venous stasis incident to intra-abdominal pressure, as it is upon the incompetency of the valves, and that this incompetency in turn is dependent on congenital formation rather than upon acquired pathological conditions. Certain it is that varices form in otherwise healthy individuals without appreciable cause, that they form in the vein least protected by valves and which would naturally suffer most from hydrostatic pressure, and that they have been relieved and cured by the application of an artificial valve—*i.e.*, a water pad placed over the trunk of the internal saphenous near its origin.

Congenital valvular insufficiency will explain many of these cases of varicosity of the long saphena and its branches, which are not due to external obstruction, violent straining, or thrombus.

Aside from the weight, aching, and at times acute neuralgic pains dependent upon varicose conditions of the veins of the leg, and the infiltration, inflammation, and ulceration of the skin and subcutaneous tissues, there is danger of severe hemorrhage from bursting of the vessel. I personally know of two fatal cases, and numbers are reported and still others have never found their way into surgical literature. This hemorrhage is, of course, readily arrested, but unfortunately it is liable to occur when skilled help is not at hand.

Moreover, it can readily be fancied that in some of the enormously dilated veins which are occasionally seen the diversion of such a large quantity of blood from the general circulation might seriously influence general health.

Thrombosis with consequent embolism is also an ever-present danger, especially in varicosities about the knee, and though this complication is rare it is one of exceeding gravity.

As to the relative frequency of varicosities, at least those sufficiently advanced to produce serious inconvenience or even disability, I believe there is some misconception. In the management of a number of large surgical services in the city I have been surprised at the relatively small number of patients presenting themselves for relief from this affection. Out of 12,806 surgical dispensary cases taken from the reports of several hospitals, but forty-three are reported as suffering from varicose veins—about three-tenths of one per cent of the total number. In the summer, wishing to give a special form of operative treatment a careful trial, I requested my residents at the Philadelphia Hospital to scour the female out-wards for patients on whom it would be justifiable to perform a radical cure. These are taken from the classes who are peculiarly prone to this affection—that is, the poorly nourished and hard-worked—and the great majority of them are past middle life. Of the total number I found but a single case of enlarged vein sufficiently pronounced and sufficiently discomforting to the patient to make me feel justified in suggesting operation. This was promptly refused.

It is undoubtedly true that the great majority of the cases observed can be treated satisfactorily by palliative means, notably by the truss and by the elastic bandage. In either case the appliance should be removed at night and should be reapplied before arising in the morning.

The indications for operation are: (1) A varicose condition steadily increasing in spite of palliative means, and particularly the pres-

ence of veins so dilated and attenuated that slight trauma may occasion hemorrhage; (2) intractable ulceration, infiltrations, or inflammations of the skin and underlying tissues; (3) present or prospective disability; (4) the occurrence of thrombi, particularly about the knee-joint and above it.

Injections of coagulating or irritating substances with the object of causing inflammation and subsequent cicatrization were at one time popular. Stevenson (London *Lancet*, ii, 769, 1886) employed carbolic acid. He thus treated eight cases, injecting one minim of the pure acid at several points in the vein, a ligature first being placed about the limb high up. Schede quotes Soquet and Guillermond as having reported sixty cases treated by the injection of tannate of iodine. Boight recommends injections of ergotin. Isaac injected a five-per-cent solution of sulphate of iron. Bryant injected tannin into the tissues lying about the vein. This method is dangerous and futile.

Ignipuncture is advocated by Tillman and a few of his followers, the point of the galvanocautery or Paquelin being employed.

Herepath advised subcutaneous nicking of the borders of the saphenous opening, with the idea of thus doing away with any obstruction which might be caused by this tough fibrous band.

Acupressure has had many advocates, among them Davitt, Fergusson, Lea, Velpeau, and Fricke.

Rigaud reports 160 cases cured by dissecting the vein through a small incision and exposing it to the air. Gangrene subsequently took place at the point of exposure. He lost three cases from pyemia. He very justly concludes that this method is extremely dangerous and unreliable and recommends division between ligatures under the strictest antisepsis.

Retrenching of the skin with the idea of making this serve as an elastic stocking has been practiced by a number of surgeons. Lang quotes a case of Maclaren's, this surgeon having taken an elliptical piece of skin from the back of the leg, reaching from the popliteal space to the tendo Achillis, and having obtained good results.

All these methods may be fairly considered out of date, and there remain to be considered: (1) single ligature of the saphenous vein high up (Trendelenburg's operation); (2) multiple ligature through the entire course of the varicose veins, first popularized by Phelps; (3) extirpation of the greater part or all of the dilated vein, or Madelung's operation. The names of the surgeons are thus associated with a particular operation rather because they have popularized these procedures than because they have originated them, since, for instance, resection of the vein was advocated by Celsus, and the principle of single ligature high up and multiple ligature was practiced long before the era of antiseptic surgery.

Considering these three operations, the easiest and quickest is that of high ligation. The long saphenous vein is exposed shortly after it leaves the saphenous opening, two ligatures are applied, the vein is divided between these ligatures, and the small opening is closed by a stitch. A bandage and splint are then applied and the patient is kept at rest for one or two weeks. The whole operation can be completed in three or four minutes and does not require a general anesthetic, eucaine B rendering the procedure entirely painless.

Multiple ligation as performed by Phelps is also rapidly accomplished, and it is practicable to do it under local anesthesia. He has operated on upwards of 200 cases of varicose veins of the leg without a death, and in so far as immediate results were concerned without a single failure. His method is that of multiple ligature with catgut. He aims at entire occlusion of the dilated vein, throughout its whole length, and has applied as high as sixty or seventy ligatures, the distance between these ligatures being from one inch to an inch and a half. The thread is placed subcutaneously—that is, a flattened needle threaded with catgut is driven beneath the vein, is unthreaded, is then carried over the vein through the same opening, is rethreaded, and on withdrawal of the needle the vein is included in the ligature, which is tied down tight, the knot being pushed into the skin if fine catgut is employed. The limb is splinted and the patient kept in bed for two weeks, and after that a roller bandage is applied for about two months.

This method is open to the objection that it is often difficult to pass the needle under instead of through the vein, and that the needle is liable to puncture the branches, penetrating through the deep fascia. These objections are by no means insuperable, and the permanent value of the operation must depend upon ultimate results. The total excision of the varicosity is the most difficult and tedious of all operations, and though it is

practicable to perform it under local anesthesia the majority of surgeons will probably still continue to employ a general anesthetic.

As a modification of a total exsection, multiple resection commends itself as a valuable procedure, but it is worthy of note that the great majority of surgeons who have written on this subject are strongly inclined to favor total exsection. Boennecken, Bennett, McKay, Maylard, Hause, Rogers, Duchamp, Wyman, Jonas, Remy, Dambrowski, Soldani, Rema (who obtained ten cures, twenty-two non-successes, and two deaths in thirty-four cases), White, and many others are warm advocates of this method.

High ligation of the saphenous and division between ligatures has almost as many advocates. Tillman states that Trendelenburg has practiced this simple operation for many years with the very best results, and that he considers it the best treatment for varices of the leg.

Prawdoljubow reports eight cases thus treated, with entire success. Wolff has thus successfully operated on twenty-two cases, employing only cocaine anesthesia. In every instance great symptomatic relief followed; the ulcers, eczema, and hemorrhages permanently subsided. He states that a good temporary result is always seen, but is not willing to speak definitely in regard to final results.

Remy employs both methods. Schede, van Hoeter, Schwartz, and Folker favor the Trendelenburg method. Zeses recommends multiple resections, and states that Starke, of Berlin, has reported thirty cases, all successful. Hause also reports ten successful cases. Savory also recommends multiple resections, holding that extensive dissection is dangerous and unnecessary.

My personal experience in the operative treatment of varicose veins has been limited to six cases. Four of these cases were men, two were women; three were complicated by edema, eczema, and intractable ulceration; in five the long saphena and its branches alone were involved; in one both the long and short saphenæ.

Two cases were treated by multiple ligation, eight ligatures being used in one, twelve in the other. The vein was exposed by a cut half an inch long, was ligated with catgut in two places and cut between. It was splinted for twelve days, and the patient was then allowed to be up with a neatly applied bandage.

The immediate effect was good. Standing and walking produced no sense of fatigue, and though the dilatation between the sets of ligatures remained after operation, it gradually grew less and was not materially increased by the standing posture. In one case at the time of operation the veins were found full of a soft thrombus. This was squeezed out, but subsequently reformed, and the leg remained tender and edematous for over a month. Both cases healed by primary intention.

One case was treated by multiple resections, six cuts being made, and from two to four inches of vein being taken out at each point. The immediate result in this case was more gratifying than was that from multiple ligation. The varices had almost entirely disappeared, and the subjective symptoms were relieved.

Three cases were treated by extensive resection. In two the incision was made directly over the course of the vein; here the skin was so thin and its vitality so impaired that the wound was slow in healing, although it remained entirely clean.

The results in these cases of extensive resection were better than those obtained by either of the other two methods. In the last case operated on thirty-seven inches of vein was removed. It was the most marked case of leg varix I have ever seen, the tortuous dilated vein forming a mass the thickness of a man's forearm, beginning three inches below the saphenous opening and running down below the middle of the calf. In this case the incision was made in the form of a flap. Thus the greater part of it was carried through healthy skin. This skin was dissected back, the vein was then tied above, about two inches below the saphenous opening, and was dissected downward. The patient had suffered for years from marked solid edema and a deep indolent ulcer, which had resisted absolutely every form of palliative treatment. He was a glass-blower by trade. I operated on him July 12, 1894. I have recently heard from Dr. Herbert Carpenter, of Salem, N. J., whose patient he was, who states that his ulcer healed promptly and the edema has disappeared. Since then (more than four years) he has been working steadily at his trade of glass-blowing with no sign of recurrence. The other saphenous vein was also varicose, but was not touched. It remains in the same condition.

I believe that all three of the methods at present in vogue have their proper application. When the varix is moderate in degree,

even though extensive, and where the vein is dilated high up, the high division between ligatures, performed under cocaine, should be given a trial. Should this fail and should the vein be moderately dilated, either multiple ligation or multiple small excisions would be indicated. When the veins are enormously distended and tortuous, and particularly when they contain sacculations and thrombi, total excision is indicated.

All of these methods of treatment should be supplemented by rest in bed for two weeks with careful splinting and by the wearing of a carefully applied bandage for at least a month. Operative dangers and complications are no longer to be feared.

THE TREATMENT OF HEART DISEASE IN CHILDREN.

At the last Congress of Gynecology, Obstetrics, and Pediatrics, held in October, 1898, WEILL read a paper upon this subject. In congenital lesions we are utterly unable to do any material good; but in acute endocarditis in which there is danger of the development of severe valvular lesions, preventive medicine can do much. The endopericarditis of rheumatism is affected little if at all by the salicylates, yet it is in rheumatism that these lesions most frequently occur. In typhoid fever with a tendency to heart disease the cold bath is exceedingly efficacious as a prophylactic against cardiac lesion. Antidiphtheritic serum is to be used as a prophylactic in diphtheria, and antistreptococcic serum in scarlatina. He thinks salicylate of sodium is of little avail as a direct remedy in rheumatism of the heart, but its use shortens the attack and is thereby of value. It is well borne by children, and rarely produces vomiting, vertigo, or roaring in the ears, if given in the dose of seven grains a day in the first year of life, fifteen to thirty grains up to the third year, and forty to seventy grains at ten years. The diet should also be carefully attended to. Milk, soups, and absolute rest are to be resorted to, the heart quieted if necessary by the use of small doses of bromide of potassium and digitalis, and insomnia, if marked, combated by sulphonal or trional.

To still further combat endopericarditis Weill suggests inunctions over the precordium, the application of cold, the application of flying blisters, and if the patient is strong, venesection. (With this latter plan of treatment we cannot at all agree.—ED.)

Where actual valvular changes exist blisters over the precordium, or even the application of a hot iron, are recommended, and the administration, internally, of iodide of potassium for fifteen or twenty days in each month in the dose of three to ten grains, given after two meals in a glass of milk. He thinks that about six out of every 100 cases of rheumatism in children die from rheumatic pericarditis, and that after the disease becomes at all subacute we can do little to relieve it.

Should the pericardial effusion become purulent it must be allowed to escape by means of an incision. After a valvular lesion has become chronic it is necessary to improve the condition of the heart muscle by a stimulant and nutritious diet. The patient must be continually in the fresh air. Rubbing must be resorted to to improve the peripheral circulation, and gymnastics with Swedish movements and hydrotherapy employed. Care must be taken to exercise all the muscles of the body, but not to tire them, and violent exercise must be absolutely prohibited. Such games, for example, as football and tennis, and long walks, are not to be permitted. Bicycle riding may be utilized in moderation, but great fatigue must not be allowed. Regular hours must be insisted upon for meals and for retiring. The digestive tract must be kept in good order. Severe mental work ought also to be prohibited. In paroxysmal dyspnea coming on in heart disease absolute rest, counter-irritation in the form of a mustard plaster over the precordium, and the administration of diffusible spirits, are to be resorted to. Subcutaneous injections of camphor, caffeine, and ether are useful, and inhalations of oxygen and nitrite of amyl may be used. Should there be pulmonary congestion with albuminous expectoration, active counter-irritation should be applied to the chest. Should great cardiac excitement be present digitalis or caffeine may be needed. If cough is present the administration of sedative substances, such as iodide of ethyl, pyridin, antipyrin, and bromoform, may be given. The caffeine may be given in the dose of one to two grains a day to a child of from two to five years, and four to seven grains a day to a child of seven to fourteen years. If it is desired to give it hypodermically the following solution may be used:

℞ Benzoate of sodium, 45 grains;
Caffeine, 30 grains;
Distilled water, 2½ drachms.

A small hypodermic syringeful of this may be given once or twice a day.—*Revue de Thérapeutique Médico-Chirurgical.*

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Leading Articles.

FATAL EFFECTS FROM MERCURIAL INUNCTIONS.

Mercury is given in so many forms, and so often, to patients without producing other results than those which are good that instances in which it is administered with disastrous effects are of very considerable interest. In the vast majority of cases in which evil effects follow the employment of this drug the symptoms consist chiefly in more or less severe evidences of salivation which force themselves upon the attention of the patient and physician so early that the administration of the drug is stopped before any serious damage is produced. Sometimes, too, when mercurial inunctions are used for the removal of parasites, or in the treatment of syphilis, and active care is not exercised in the maintenance of cleanliness of the mouth, similar disagreeable symptoms ensue; and it will also be recalled that a large number of cases of subacute or chronic mercurial poisoning occur in artisans working with mercury, although in the great majority of instances the symptoms manifested under these circumstances have been those of disorder of the nervous system rather than disorders of secretions. In this connection a case which has recently occurred in Belgium is of very considerable interest, and notice of it has been taken in a recent number of the London *Lancet*. It seems that one physician was the only medical man appointed to take charge of the patients in a very large workhouse which contained no less than 4000 inmates, and that attached to this workhouse there was also an infirmary which contained from 100 to 200 patients, and that he was also in sole medical charge of 125 officials and their families, some of whom resided at a considerable distance. Because of the large amount of work which accumulated the medical officer issued an order that all infirm inmates who were admitted and suffering from vermin should receive as a routine treatment an inunction of a compound of two parts of strong mercurial ointment with three parts of vaselin, followed an hour later by a bath. The average quantity of ointment employed was about one drachm, and this treatment was carried out in about 630 patients, of whom thirty showed signs of mercurial stomatitis, seventeen of them being confined to the ward and three of them being ill enough to be taken into the infirmary. Of these three one died. He was sixty-seven years of age, and his death did not occur until a month after the inunction had been given; nevertheless the medical officer was arrested charged with manslaughter. In the medical expert evidence of the courts it could not be proved that this treatment was responsible for the death, although from the fact that an "ulcero-gangrenous" condition speedily occurred it seemed as if it were the provoking cause. To make a long story short, the physician was fined fifteen francs on the ground that such heroic measures were not suited to all persons and that it should not have been prescribed indiscriminately without a medical examination. This judgment was appealed from and the defendant was finally acquitted by a higher court.

Considering the circumstances this verdict of acquittal was eminently just. It is quite possible that in such a large proportion of patients one might readily be found with an idiosyncrasy to mercury, and the labors required of this individual physician were so excessive that manifestly the blame for the accident should rest upon those who were so niggardly with their appropriations rather than upon the medical man in charge.

THE EXCESSIVE USE OF ALCOHOL.

The editorial pages of the THERAPEUTIC GAZETTE have heretofore contained material dealing with this important question, and in these articles we have endeavored to show that while alcohol is a drug which is greatly abused, it is also one which, when properly employed, is, like any other powerful drug, capable of producing very good results. As persons interested in the study of the social side of mankind as well as in his physical diseases, it is interesting for physicians to note how this drug when employed by the laity without medical advice is abused. That it is so abused by the laity every one knows, and none are so blind that they cannot see it. In this connection, an article upon alcohol which has been published by Debove in *La Presse Médicale* of November 16, 1898, is of very considerable interest. After reviewing a certain amount of historical data concerning this subject, he points out that it may be studied under four headings, namely, the consumption of alcohol, the effects of it on the individual and on the race, alcohol as an agent in producing intoxication, and the prophylactic measures which are to be used against the increase in alcoholism. He then points out what enormous quantities of alcohol are consumed in alcoholic beverages in France. Thus as much as 2,000,000 hectoliters of alcohol are used a year, according to official reports, and as a considerable quantity is manufactured and taken secretly the total quantity consumed is even greater than this. As much as 500,000 hectoliters of brandy are used. There has also been a steady increase for years in the quantity of alcohol which is ingested. Thus, in 1850, 1.46 liters of alcohol was consumed by each inhabitant; in 1860, 2.27; in 1880, 3.64; in 1895, 4.7; in 1896, 4.19. In addition to this there is an annual consumption per head of 25 liters of beer, 18 liters of cider, and 79 of wine, which represents about 10 liters of alcohol.

The actual consumption of alcohol in various countries is illustrated in the following statistics. It is of very considerable interest, as it shows to what an extraordinary degree France surpasses all other nations in the consumption of alcohol. Thus France uses per head 14 liters of alcohol to each individual, Belgium 10, Germany 10, Great Britain 9, Switzerland 8, Italy 6, Holland 6, United States 6, Sweden 4, Norway 3, and Canada 2. Statistics in regard to these countries, unlike those of France, show that they are using very much less alcohol to-day than they did twenty or thirty years ago. Thus the consumption in the British Isles has decreased slightly, in Italy it has decreased about one-half, in Switzerland it has decreased one-half, in Germany about one-half, and in the United States about one-half. Not only has the consumption of alcohol increased very materially in France, but, as might be imagined, the number of places at which it is retailed has also increased; thus in 1830 there were in France 281,000 public houses, but in 1897 there were 500,000, and in the Department du Nord there is one public house to every forty-six inhabitants, or to every fifteen adults. In the Department of La Seine-Inferieure there is one for every seventy inhabitants, or twenty-two adults, and in Paris there are no less than 33,000 public houses, which is more than one to every three other houses. Nor does the sale of alcohol stop here, as Debove points out, for it is sold upon railway trains and even upon the tramways at points where traffic is temporarily interrupted by change of cars. Resorting to cafés in his opinion increases its use amongst women and children as well as amongst men. Debove then goes on to express his views as to the enormous expenditures which are made by the French people in the purchase of these quantities of alcoholic beverages.

SALICYLATE DELIRIUM.

Perhaps it is not as well recognized as it should be that large doses of the salicylates are capable of producing cerebral disturbances, which are naturally of a fleeting character, in that they disappear almost as soon as the administration of the drug is stopped. It will be remembered that Strümpel has recorded cases of active delirium occurring after full doses of salicylic acid, this delirium being happy in its type and occurring most commonly in young girls. In other cases full doses produce visual disturbances, which are most marked when the eyelids are closed. In this connection it is interesting to take notice of a case reported by Rendu at a recent meeting of the Société Médicale des Hôpitaux. It was that of a woman of thirty who was admitted to the hospital owing to an attack of subacute polyarticular rheumatism. An examination of the urine showed it to be normal, and no visceral lesions existed as complications. The salicylate method of

treating rheumatism was at once instituted, as much as 1½ drachms of salicylate of sodium being given each day. At the end of thirty-six hours the joint symptoms had almost disappeared and the fever was completely dissipated. That night after a chill she became violently delirious, had hallucinations of sight and hearing, with extreme agitation, and could only be restrained by force. The temperature rose several degrees; the urine was abundant and contained considerable quantities of albumen and indican. The tendency was to regard the rise of temperature and the cerebral manifestations as signs of cerebral rheumatism, and the possibility of uremia was considered. Finally it was decided, however, that the symptoms were due to salicylic intoxication. Salicylate of sodium was therefore stopped and sixty grains of bromide of potassium administered; a hot bath was also given of half an hour's duration. A milk diet was ordered. At the end of two days the patient was much better, and the joint symptoms, which had temporarily become slightly worse, were relieved by the use of antipyrin and sulphur baths.

The points which Rendu thinks are noteworthy in this case are the invasion of the symptoms without prodromes, the absence of headache and roaring in the ears, and the presence of acute delirium of maniacal form. Secondly, he thinks that the albuminuria with production of enormous quantities of indican were due to the introduction of the salicylate. Third, he does not think that they were due to uremia from renal irritation caused by this drug. The antecedents of the patient were not such as to indicate that she would have an idiosyncrasy to the drug, and a final examination of her urine on her recovery failed to indicate any disease of the kidneys.

THE TREATMENT OF TRAUMATIC TETANUS BY ANTITOXIN.

It is now several years since tetanus antitoxin serum has, on the basis of laboratory experiments, been presented to the profession as both preventive and curative of tetanus.

Though the preventive power of the serum seems to have been thoroughly proven from an experimental standpoint, convincing evidence as to its clinical value is still wanting. It has been used when wounds were of such nature as to make the development of tetanus not unlikely, and apparently successfully. Negative evidence of this nature must, however, be cumulative before it is of special value, and the record of a few cases carries with it absolutely no weight. It cannot, however, be gainsaid that the arguments in favor of preventive treatment by timely injections of immunizing serum are so strong that, with the evidence before us as to the comparative innocuousness of these injections, measures of this nature would be justified when punctured or lacerated wounds have been soiled by earth, and especially by that about stables. or when there are other reasons for supposing that tetanus may develop.

As to the curative effect of the antitetanic serum after the disease has once thoroughly developed, the case stands, as it has for the last two years, *sub judice.*

It is true that large numbers of cases have been collected, and that from them a mortality very much lower than that attributed to the disease before the advent of the new treatment has been calculated. In studying these cases, however, it will be noted that those which recovered were, with almost no exception, of the subacute type—developing more than five days from the date of infection, running a comparatively slow course, and of a nature similar to that which is typical of the cases which frequently recovered before the antitoxin treatment was known.

If the curative effect of the antitetanic serum were proven, it would be the duty of every hospital, and of every physician and surgeon, in the country to have a supply of this new and exceedingly costly drug at hand. The failure of a large number of hospitals, and of the great bulk of the profession, to take such measures that they may thus be provided at short notice, abundantly proves the lack of confidence with which this modern method of treatment is still regarded.

As a further important modification of the serum-therapy of tetanus, Roux and Borrel's intracerebral injections are worthy of comment. This method of treatment is based on certain laboratory experiments. They found that if a mixture made by rubbing together brain substance and tetanic toxin were centrifugalized the upper liquid layer of the resultant mass contained very little toxin, whilst the thick lower one, representing the nervous substance, held practically all; thus showing that the poison was taken up by the nerve cells. They also noted that immunized rabbits perished from the intracerebral injection of a dose of toxin, which could have been injected hypodermically

without causing symptoms of any kind; but that if to the dose capable of causing death when injected intracerebrally a drop of blood from an immunized rabbit were added, the injection would prove innocuous.

As a conclusion to these experiments Roux and Borrel hold that the toxin of tetanus is fixed in the nerve cells, that the antitoxin remains in the blood, and that a curative serum injected into the blood is powerless to neutralize the poison which has already entered the nerve cells, because it cannot be reached.

Tetanized guinea-pigs treated by intracerebral injections mainly recovered. Nearly all subjected to intravenous injections died.

Thus to protect the brain and upper part of the cord from tetanus, antitoxin must be introduced directly. It cannot cure the lesions, and if the medulla is poisoned at the time of injecting, as shown by impaired swallowing power and respiratory changes, the treatment cannot be curative. If, however, intracerebral injection is made before the toxin has been absorbed by the nerve cells of the vital centers, the latter may be protected against the injurious effect of the absorption.

As to the clinical results following intracerebral injection of antitetanic serum, Rambaud has collected twelve cases from foreign literature, eight of whom perished. Of the four successful cases, the incubation in one was fourteen days; in two it was unknown, there being no wound; in one it was twelve days. Apparently none of these were of the fulminant class. Three cases have been treated by the new method in this country. The first one developed tetanus after laparotomy, the incubation being ten days; the patient recovered from tetanus, but died about three weeks after the injection of acute nephritis. The second case had an incubation period of twelve days, and was in the seventh day of a mild tetanus when the injection was performed. The third case had an incubation of seven days; he died twelve hours after injection. Until a better showing is made for treating tetanus by trephining and making intracerebral injections, the profession can resort to other and simpler means with a clear conscience.

THE TREATMENT OF BLOOD EFFUSIONS INTO THE KNEE-JOINT BY PUNCTURE.

It has been sufficiently proven, both by experimental research and clinical observation, that blood effused into the knee-joint as the result of traumatism, in the main remains liquid unless the injury be of such nature as to cause fracture of the bone or very serious injury to the joint structures. As a rule the fluid blood is quickly absorbed. Even when the blood clots it is usually absorbed, but more slowly, so that after about three weeks there will remain no trace of hemorrhage excepting some pigmentation. The rapidity of this absorption is in inverse ratio to the severity of the lesion.

Although the prognosis of traumatic hemarthrosis is in the main good, it must be borne in mind that extreme tension greatly retards absorption, weakens the soft parts of the joint, and may be followed by a chronic hydrarthrosis. Exceptionally ankylosis may result from organization of the blood-clot with the ultimate formation of fibrous tissue.

As to the treatment of hemarthrosis, Volkmann advised, even in the preantiseptic period, that when the knee-joint was so greatly distended with blood that a fracture, such as that of the patella, could not be properly adjusted, the blood should be evacuated. In the absence of such an injury he advised puncture when the swelling incident to bleeding was very great.

Lübbe (*Deutsche Zeit. für Chir.*, 49 Bd., 6 Heft) holds that there is every reason for puncture in all cases of pronounced hemarthrosis; since thus is removed quickly and without danger a foreign substance which may lead to entire destruction of the joint. Of thirty-two cases thus treated in the Sailors' Hospital at Hamburg, the average duration of treatment was twenty-two days. Of twenty-two cases treated without puncture, the average period of treatment was thirty-four days. This contrast is still more striking if it be borne in mind that only the most pronounced cases attended with greatest swelling were punctured, whilst those characterized by only moderate swelling were treated conservatively.

Bondsen arrived at practically the same results from his experience at the Copenhagen Hospital. Moreover, the percentage of cases completely cured is much larger after operative treatment. A very protracted convalescence was never noted after puncture.

The instrument used was a large trocar. The operation was performed but once and immediately after the patient was taken into the hospital; the joint at the same time being washed out with either a two-per-cent carbolic solution or 1-to-5000 sublimate lotion.

In no instance was this procedure followed by bad results. The after-treatment was that common to contused joints—*i.e.*, immobilization and pressure until the inflammatory reaction subsided, and after that massage.

This treatment, which has been strongly advocated by many of the ablest surgeons, is one which has not yet become popular because of the fear, often well founded, of infecting the joint, and thus subjecting the patient, whose chances of recovery are good, to the loss of a limb, or even to the loss of life, by an operation having for its object the allaying of pain and the shortening of the period of convalescence. Modern technique has, however, reduced the danger of infection so nearly to the vanishing point that it may be disregarded. When it is considered that the effusion of blood if left to Nature's resources may entirely destroy a joint—that when it is extensive and produces great tension the joint at the best is likely to be permanently weakened—the operation of puncture seems to be fully justified, not only immediately after the infliction of the injury, but after some weeks when it is apparent that the blood is not being absorbed.

Reports on Therapeutic Progress

ACUTE AND CHRONIC MIDDLE-EAR SUPPURATIONS: THEIR TREATMENT.

In the *Clinical Journal* of October 5, 1898, De Santi tells us that in middle-ear disease the following are the lines of treatment, modified, of course, according to the severity of the symptoms: The patient should be kept quiet both mentally and physically, given a good saline purge and a light diet. If there be severe pain, febrile symptoms, and considerable hyperemia, the patient being a healthy adult, the local abstraction of blood by means of leeches (eight to twelve for an adult, two to four for a child) applied to the mastoid region, or tragus, and followed by the application of warm fomentations, will give relief.

In less severe cases, or in people with broken-down health, where bleeding is contraindicated, warm sedative poultices may be applied externally, or medicated applications be instilled into the ear every three or four hours. Of such applications solutions of opium and belladonna, of morphine (two grains to the ounce), of simple tincture of opium, are the most useful. A few drops, eight to ten of the particular solution selected, are warmed and dropped into the ear, and the canal closed with a pad of cotton-wool.

In private practice a convenient form of medicament consists of aural ovoids. They are capsules of gelatin containing one-sixth grain of liquid extract of opium, or one twelfth grain of hydrochlorate of morphia, and are introduced deeply into the auditory canal with aural forceps, the meatus being then closed with cotton-wool. The capsule gradually dissolves and the pain is relieved. Should the pain be so severe as to prevent sleep, ordinary internal narcotics are indicated.

When the pain, notwithstanding this treatment, continues, and there is evidence of a collection of pus in the middle ear, as revealed by yellowish bulging of the membrane, it is necessary to take measures to evacuate the pus in accordance with ordinary surgical principles.

It is of especial importance not to delay, for the tympanic cavity is in anatomical relationship with most important parts, and it is no exaggeration to say that a timely incision may be the means of saving the life of the patient. Moreover, paracentesis or incision with a myringotome not only gives exit to the pus in the tympanic cavity, but by division of the vessels reduces the hyperemia and lessens the amount of damage which usually occurs in the membrane from spontaneous perforation; this is particularly the case when scarlet fever is the cause of the inflammation.

The operation is most conveniently performed as follows: The external auditory meatus having been thoroughly cleansed and dried, a fifteen- or twenty-per-cent solution of cocaine is sprayed on to the tympanic membrane, a suitable speculum inserted, and a good light reflected down the canal. If from the swelling of the external meatus the membrana tympani cannot be seen, it is wiser to stick to fomentations, etc.

The patient's head being held by an assistant, the membrane is freely incised from above downwards with a myringotome in the situation where there is the greatest bulging, or, if general, behind and below the handle of the malleus.

It is of importance that the incision should be a free one, as the contained pus is often thick and viscid, and moreover there is a tendency for the artificial perforation to close up too soon. After incising the membrane

the middle ear should be inflated with Politzer's bag or a Siegle's pneumatic speculum, to drive out as much pus as possible.

The auditory canal is then closed with aseptic cotton-wool; the incision must be kept patent so long as there is any discharge of pus. The patency of the artificial opening is best assured by free incision and daily Politzerization; but should there be a tendency for it to close too soon, a probe should be frequently passed through the aperture. Antiseptic cleansing should be carried out twice a day, and a lotion prescribed for syringing the nasopharynx, otherwise the condition is apt to become chronic.

In the early stages just subsequent to perforation the author orders the following treatment to be carried out: The ear to be carefully and gently syringed three or four times a day with a warm solution of boric acid (eight grains to the ounce). Whilst part of the solution is still in the meatus inflation by Valsalva's or Politzer's method is employed; this forces some of the intratympanic secretion out into the meatus, from whence it can be removed by again syringing out. The ear is then carefully dried and gently plugged with absorbent wool.

If the discharge be slight in amount syringing should be employed less frequently, and after drying the ear small quantities of finely powdered boric acid are insufflated. Under this treatment recent cases will get well in a few days to a month. It is generally necessary that the practitioner should carry out the treatment himself, or else thoroughly instruct the patient's friends in the act of syringing and cleansing, so that it shall be properly done.

Among the author's notes he finds records of several such cases, cicatrization having taken place within a month or less. Perforations due to trauma and followed by suppuration, as a rule do particularly well under the above treatment. He has had recently two such cases: in one, a lad aged eighteen, the drum was perforated by the spoke of a bicycle wheel and suppuration ensued; in the other, a lunatic girl, the perforative otorrhea was caused by a rusty nail secreted in the meatus. Both cases were cured within three weeks.

Chronic cases, which unfortunately are by far the most common, are often extremely difficult and even impossible to cure.

The general lines of treatment should be:

Thorough cleansing and disinfection of the cavities of the middle ear.

Appropriate treatment of the nose, nasopharynx, and throat.

Careful general treatment, especially with regard to such diatheses as tubercle, syphilis, etc.

Thorough cleansing and disinfection of the cavities of the middle ear are of the greatest importance, and such treatment is only in accordance with ordinary surgical principles.

Two methods may be employed—the moist and the dry. The former is applicable when there is profuse and fetid discharge; the latter when syringing causes pain or giddiness, where the discharge is slight and non-fetid, and in cases of old quiescent perforations (if they are treated at all). The author carries out the moist treatment thus: Thorough syringing of the ear with warm boric lotion (100°–102° F.); inflation of the middle ear by Valsalva's or Politzer's method, and careful drying of the parts with absorbent wool-wicks twisted on an aural probe; finally, he insufflates a very little finely powdered boric acid on to the diseased mucous membrane of the tympanum, and lightly fills the outer half of the external meatus with a plug of salicylic wool. If the discharge be very profuse, he orders this treatment to be carried out three or four times a day. As the discharge lessens; the syringing, inflation, drying, and insufflation are less frequently done, until finally the powder remains dry for days or even weeks.

This treatment may have to be persevered in for a considerable length of time before a permanent cure results; if no benefit accrues after a thorough trial, other methods or medicaments must be employed.

Of course, such complications as granulations, polypi, caries, etc., will require special attention before the boric acid treatment can be expected to be efficacious. The next most useful solution in the writer's experience is peroxide of hydrogen (fifteen to twenty volumes strength); this solution is of particular value in tubercular cases.

Of other solutions for syringing, a choice may be made from the following: Carbolic acid in water (two-per-cent); corrosive sublimate solution (1 in 3000–4000); a solution of boric acid in water and alcohol (boric acid 1, distilled water 30, rectified spirits 5); a teaspoonful of ten-per-cent alcoholic solution of salicylic acid to a wineglassful of water; glycerin of carbolic acid and liquor plumbi subacetatis (1 ounce to 10 ounces of water), a dessertspoonful in a wineglassful of warm water.

In the employment of these different solutions a choice must be made according to their antiseptic properties or any injurious microorganisms present, and with reference to the nature of the secretion itself, whether thick and tenacious or thin and watery, and according to the presence or absence of fetor.

Treatment by Strong Rectified Spirit and Strong Astringents.—The use of rectified spirit, first introduced by Weber-Liel, is a method of treatment often of as much service as the boric acid. It is especially indicated when there is much granulation tissue present, and after polypi have been removed.

After cleansing and drying the ear, the head is inclined well over to the opposite side, and from ten to fifteen drops of the warmed solution (usually, to commence with, equal parts of spirit and water) instilled into the ear. The drops are kept in for ten minutes; the solution is then allowed to flow out, the parts are dried, and the canal plugged lightly with salicylic wool. This treatment is repeated two or three times a day, and the strength of the spirit gradually increased until it can be borne pure.

The author frequently uses the spirit drops in combination with a solution of boric acid in water (*vide* solutions), and finds it often more efficacious than either alone.

If there be much fetor it is well to add a little carbolic (two-per-cent) to the solution. Iodoform may be combined with the alcohol, half a drachm of the powder to an ounce of the spirit.

In very obstinate cases, with extensive destruction of the membrane, excessive granulation tissue, and great swelling of the mucous lining of the middle ear, astringents or caustic applications are indicated. Ten to fifteen drops of a ten-per-cent solution of nitrate of silver are poured into the ear in the same way as the spirit drops, and when allowed to run out again the ear is syringed with a solution of chloride of sodium to neutralize any of the silver salt remaining; or the diseased mucous membrane may be rubbed over with a solution of the strength of forty grains to the ounce.

In a few cases, where there have been no signs of any acute inflammatory mischief, the writer has carefully touched the diseased mucous membrane or granulations with chromic acid fused on a probe, and has obtained good results. It must be very carefully applied as the caustic action of the chromic acid is very ·eat.

The lessening of the discharge is an indication to diminish the frequency of the syringing, and to employ dry applications. The ear is cleansed with cotton wool-wicks and the diseased parts are insufflated with finely powdered boric acid. A powder formed of boric acid four parts and iodoform one part may be substituted for the plain boric acid, particularly in tubercular cases.

In every case of otorrhea it is incumbent on the practitioner to make a thorough examination of these regions. As the author has already stated, the majority of cases of perforative otorrhea originate in some morbid condition present in the nasopharynx, etc., and it is as necessary to treat these morbid conditions as to treat the middle ear itself. Enlarged tonsils, adenoids, hypertrophic rhinitis, spurs, nasal polypi, nasal or postnasal catarrh, must all receive the special treatment appropriate thereto.

It is unwise to remove adenoids or tonsils if there is profuse fetid otorrhea. An attempt must therefore be made to render the middle ear as aseptic as possible, and then the particular operation may with safety be undertaken. For nasal or nasopharyngeal catarrh he orders daily syringing of both nostrils with one of the two following solutions:

℞ Sodii chloridi,
Sodii bicarbonatis, āā grs. vij;
Sodii boraci,
Sacchari albæ, āā grs. xv.

One powder to be dissolved in half a tumblerful of warm water and used with the syringe.

Or

℞ Glycerin. acid. carbolici, ♏ xij;
Sodii bicarbonatis, grs. vj;
Sodii boraci, grs. vj;
Aq. destill., q. s. ad f℥j.

If syphilis or tubercle be present they must receive appropriate treatment. Good food, fresh dry air (mountain air), good sanitary surroundings, and tonics, especially iron, must be recommended. The patient must be warned against exposing himself to cold draughts, and told to carefully avoid the entry of cold water, especially sea water, into the ear or ears.

It is only by careful attention to all these details that success to any degree is likely to be obtained. The patient or his friends must be told of the possible consequences of the disease, and strongly urged to persevere in the plan of treatment laid down by the surgeon, although it may be a long time before healing takes place.

ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

McCollom, from an examination of mortuary statistics, both in this country and in Europe, and from a clinical study of 4200 cases of diphtheria, gives the following conclusions in a paper published in the *Boston Medical and Surgical Journal:*

1. That the death-rate of diphtheria has been reduced to a remarkable degree by the use of antitoxin.

2. That in order to derive full benefit from this agent it is important that it should be given in large doses early in the course of the disease.

3. That antitoxin should be frequently repeated, until the characteristic effect is produced on the diphtheritic membrane.

4. That antitoxin does not cause albuminuria, and that it has no effect in producing heart complications in this disease.

5. That the physician who does not use antitoxin in the treatment of diphtheria fails to do his whole duty to his patient.

THE ANTITOXIN TREATMENT OF TETANUS.

In the *Boston Medical and Surgical Journal* Lund reaches the following conclusions in regard to this question:

Although the statistics of the antitoxin treatment of tetanus up to the present time apparently show a diminution in the mortality under this treatment, they may be legitimately criticized as on the whole insufficient in total number, in definiteness of reports, and as probably not including all fatal cases treated.

The more carefully we study them the less evidence do we find that the antitoxin treatment, and not the mild course of the disease, was responsible for the favorable course in the cases which have recovered.

There is no satisfactory evidence that harm has resulted from the injections.

There is a distinct probability that in the great majority of the total number of cases treated the dose of antitoxin, especially the all-important initial dose, has been too small to have any possible effect upon the disease.

The treatment in view of the present intractability of the disease demands further trial.

There are certain means by which we can hope to make it more effective, and these include earnest efforts on the part of those engaged in the production of serum to secure a stronger product, and on the part of those who employ it in treatment to give a sufficiently large initial dose, and to give it at the earliest possible moment. The serum should be injected directly into the blood-stream.

The strength of the antitoxic preparations furnished by the Massachusetts and the New York boards of health, when first supplied, was so slight as to render it necessary to employ 500 cubic centimeters as the initial dose.

A valuable field for the use of antitoxin lies in its employment for immunizing purposes.

The treatment of tetanus, according to our present knowledge, should consist of: (*a*) Thorough disinfection of the primary focus by mechanical means, including, if necessary and practicable, amputation; (*b*) the thorough local employment of such chemical antiseptics as have been shown to destroy both the bacilli and the toxin; (*c*) symptomatic treatment by sedatives, etc.; (*d*) thorough diuresis; (*e*) intravenous injection at the earliest possible moment of an amount of antitoxic serum which shall contain at least 500 antitoxic units.

HAS THE TREATMENT OF DIABETES MELLITUS IMPROVED?

The recent review of diabetes mellitus at the Massachusetts General Hospital from 1824 to 1898 would at first glance appear to answer this question in the negative, for the statistics show no decrease in mortality during this entire period. But such a conclusion can hardly be drawn, since any marked changes which have been made in the treatment of this affection have been of very recent date. Even the latest works in English, not excepting that by Williamson, do them scant justice.

It is, perhaps, as much the change in our point of view of regarding the disease as the variations in treatment which are capable of producing better results. The statement occurs so frequently in text-books that diabetes is incurable, that the practitioner loses all his enthusiasm the moment a patient with this disease presents himself. In despair he attempts a palliative treatment, writes out lists of articles headed "allowed," or "to be avoided," and perhaps adds a recipe for some new diabetic flour; while in giving the prognosis the patient's courage is perceptibly lowered.

In contrast to this gloomy picture is the

hopeful view which is best set forth in Naunyn's treatise. The key-note of this is contained in the following quotation: "That cases apparently severe at the outset, when subjected to a vigorous treatment, take a proportionately favorable course, while others running a severe course are, as a rule, those subjected late or not at all to careful treatment." Coming from so eminent an authority, this statement is of the greatest value, since it counteracts the tone of the usual text-book. Naunyn, in carrying out this idea, says further: "I consider it an unfortunate curtailment of the physician's task in the treatment of diabetes where it is said, 'the essential task of the physician is to support the invalid in an endurable condition of life for a long time.' In the writer's opinion a broader, more definite purpose should be put into the treatment, namely this: the strengthening of the deranged bodily function, or at least the checking of further disintegration of the same." This change of view is our first step toward an improved treatment for diabetes.

That drugs are of little value in this disease is now generally admitted. Notwithstanding this, there are few of us who have not heard from eminent sources that considerable success has been obtained from this or that remedy. Patients like the idea of taking medicine and come to the doctor for the sake of the prescription, just as they often go to church for the music. The advice as to the diet and hygiene, either of the body or soul, forms too commonly an entirely secondary consideration. But this question of drugs, at least for a host of remedies, is definitely settled for us by the Massachusetts General Hospital report above alluded to. The pancreatic preparations proved unsatisfactory. No drug, save opium, commended itself, and that in no wise as a specific. It certainly is another step forward, this relegation of the Pharmacopœia in diabetes to a very minor position.

Rollo recommended an animal diet as long ago as 1797, and it would seem as if little improvement in treatment had taken place, or could be hoped for in the future, along this line. But the point made by Rollo was the prominence given to an animal diet over carbohydrates. Little was said of the great class of fats, and what was said was quite as much against as for their use; for example, at the Massachusetts General Hospital, as late as the period 1840–1855, occurs a record of the following diet: "Lean meat, with a small quantity of stale, dry, or toasted bread, avoiding all fatty, farinaceous, and saccharine articles." That fifty years ago there was a lack of appreciation of the importance of fats can be understood, but that this idea has been allowed to persist seems incredible. That it does persist can be seen by consulting the most recent books of medicine, or by looking over the proceedings of the meetings of the British Medical Association recently convened in Montreal.

The importance of fats is seen first from the fact that they are the form of food best assimilated by the diabetic patient. Nearly all the sugar and starch given leaves the body unused, and for every 100 grammes of albumen there is the possibility of 45 grammes of sugar appearing in the urine, whereas from fat little, if any, sugar is formed. But this is not all, and herein lies another great advantage in fats. Each gramme of fat is capable of furnishing nine calories on being oxidized by the natural process of the body metabolism, whereas a gramme of proteid matter yields but four calories, even allowing that none of it is converted into sugar. These are facts, and on these facts a rational treatment of diabetes must rest.

In the light of all this, the books still continue to recommend or countenance skim-milk and buttermilk either as a prominent constituent of the diet or as worthy of trial. The difference between the amount of sugar in ordinary milk and these by-products is unessential, but the difference in fat is so great that it amounts to more than one-half of the total quantity of nourishment therein contained. In every liter of good milk the diabetic patient receives some 300 calories more nourishment (and that of the quality best suited to his needs) than he does in skim-milk.

Following the remarks on skim-milk in the text-books comes the section on diabetic breads—that pitfall over which few pass in safety. Over and over again these have been exposed in Boston many years ago, and again this year. Need we wait until the millennium before it is recognized that a small known quantity of ordinary bread is better than an unlimited amount of bread nearly as rich, or even richer, in carbohydrates?

The commonly accepted mode of treatment of diabetics has been, and still is, of a negative character. This is a much more serious charge against it than to say that skim-milk and diabetic breads are used. Article after article is cut off from the patient's diet, and

even what is left him he is only "allowed," until finally he comes to think he eats at all only by sufferance. The secret of the successful dietetic treatment of diabetes lies entirely in the opposite direction. The diet is positive. It is not a question of how little sugar, but rather how much fat. It is not so much the withholding of articles of food as it is the prescribing of those best adapted to the patient's condition. Von Noorden gives, to form a basis of the diet, what he calls his "Eisernen Bestand," which consists of 60 grammes butter, 2 eggs, 10 grammes olive oil, 30 grammes fat cheese, 1 liter milk, and 30 grammes alcohol. This quantity of food can be taken daily, is sure of assimilation, and furnishes the patient some 1600 calories, or nearly two-thirds of all that he needs. For the remaining amount there can be considerable latitude, admitting of variety.

That one may rightly prescribe and the other follow the directions given, both doctor and patient must know the amount of food taken, and have a working knowledge of its three constituents. This can only be obtained on the doctor's part by the study of first principles. This does not mean theoretical but practical study. He must know how much butter can be taken at a meal, how much cream can be mixed with the coffee, how much oil can be used in salads, etc. Only by personally weighing and measuring the kind of food his patient is to eat can he rightly advise him. Then, if it is found that the sugar continues to be excreted, the cause can be located, and a more suitable form of carbohydrates given, or the total amount can be further restricted. Really an interested, intelligent cook is of more value to most diabetics than a trained nurse. A Denver doctor recently said of consumptives that if they wished to get cured of phthisis they must make a business of it. In diabetes this applies to doctor and patient alike. Between the two a partnership must be formed, and with a more cheerful way of regarding the disease at the outset, a better appreciation of the value of fats, and a positive diet list, the results will show that there is even in diabetes an improvement in our treatment.—*Boston Medical and Surgical Journal.*

FORMALDEHYDE GAS AS A DISINFECTANT.

In the *Boston Medical and Surgical Journal* of October 6, 1898, BROUGH tells us that he believes we have in formaldehyde the best practical gaseous surface disinfectant known. For dwelling-house disinfection it is unsurpassed. It is easy of application, and does no injury to goods. It is not ideal, its use being limited to surface disinfection. Its penetrative powers under ordinary conditions are so slight as to be almost valueless. Good results are best obtained by using a large body of gas, and having the rooms as tightly sealed as possible. Length of exposure and the influence of temperature are secondary to the amount used.

Under these conditions disinfection may be regarded as complete after the use of formaldehyde.

THE PRESENT STATUS OF OPINION UPON THE USE OF QUININE IN MALARIA.

The *Medical Record* of January 7, 1899, contains an article with this title by the editor of the GAZETTE which, while it covers ground already covered by editorials and original articles in early issues of our journal, is perhaps of sufficient interest to be reproduced in this issue. Dr. HARE says:

"The return to this country of large numbers of soldiers affected by malarial disease, and the prospect of colonization of certain tropical countries by citizens of the United States, have naturally caused much interest in malarial fever, and in the estivo-autumnal parasite in particular. Physicians in the North have suddenly developed an extraordinary degree of interest in a subject which their Southern brethren have long considered of vital importance, and in consequence have studied it with considerable zeal, so that many of them have arrived at definite views as to the matter in debate.

"With these introductory remarks I proceed to a friendly criticism of a special article in the *Medical News* of December 17, 1898, by an anonymous writer. In this article the value of quinine as an antimalarial is discussed, its praises sung, and then the writer sets his spear and proceeds to charge valiantly into the ranks of those who have the temerity to believe that quinine, like every other drug, has limitations as to its usefulness in malarial disease, and that it is given recklessly and in unnecessarily large doses. This writer also states that 'there is in the air a spirit of opposition to the drug which is liable to do a good deal of harm.' If this is true, it is unfortunate, for no one can deny that, so far as the infecting organism is concerned, quinine acts as a specific.

On the other hand, it is certainly a fact that quinine has been shamefully abused in malarial fever, that it is often given in excessive doses and in cases in which its use is contraindicated, and finally, because the practitioner has been led to believe that 'where is malaria there should be quinine,' he has been led to prescribe it without studying the case thoroughly, and therefore has failed to find that its use is sometimes unwise and that the condition is sometimes not really malaria at all.

"The objection to the paper we have quoted is not that it urges confidence in quinine, but that it urges its universal use, with disdain for those who recognize its limitations. Thus that part of the article dealing with hematuria seems to indicate that the writer falls into the category defined by himself for the writer of an editorial in the *Journal of the American Medical Association*, namely, 'one with but small experience with malaria, or perhaps none,' since in the next sentence he proceeds to tell us that the voices of our Southern medical men, of the medical men of India and of Brazil and Italy, have been as a unit in favor of the universal use of quinine. That this statement is anything but correct is shown by the fact that a very large proportion of these physicians have testified to the opposite effect. Thus, to take up the most recent literature, we find Goltmann and Krauss, the subcommittee on pathology of the committee on malarial hematuria of the Tri-State Medical Association, in a report published in the *Memphis Lancet* for December, 1898, telling us that they are 'forced to the conclusion that, malarial hematuria once begun, quinine has no place in its therapy;' and again, 'the injudicious administration of quinine is often responsible for a hematuric attack.' In *La Presse Médicale* of December 3, 1898, Vincent informs us that American statistics demonstrate that the greater number of patients survive that do not receive quinine, and Netter thinks that the absorption of quinine plays an important part in the production of bilious hemoglobinuric fever. In the THERAPEUTIC GAZETTE for 1897, page 94, Dr. Meek, of Arkansas, protests 'in the name of humanity' against the use of quinine in this affection; and many other references to papers in Southern journals during the last few years could be given, not all against the use of quinine, but the majority at least preaching care in its use and recognizing that it may do harm.

"In this connection it is proper to point out that physicians elsewhere than in America have reached similar views. Karamitsas, a Greek physician, has published in the *Bulletin Général de Thérapeutique* an interesting paper dealing with seven cases in which, in the absence of acute malarial manifestations and because of malarial cachexia, quinine produced hematuria whenever it was given; and further, these patients failed to have this symptom in acute attacks, if quinine was withheld, but suffered from bloody urine if it was used. Rizopoulos in Greece and Tomaselli in Italy have also seen cases in which quinine would produce hematuria. In Guadaloupe, Du Chassaing has reported such cases. Other cases have been recorded by Pampoukis and Chomatianos, of Athens, Greece, and also by Carreau.

"In view of these facts, the statement in the article quoted, that Koch 'started' the present reaction against quinine by stating that quinine was given too freely in African malarial fevers, and that it caused 'blackwater fever,' is scarcely correct. Whatever weight his views may have, he certainly did not 'start' the reaction.

"As long ago as 1892 the author of this paper became interested in this important question and made a collective investigation of the views of physicians living in those parts of the United States in which the mortality from malarial infection was greatest, namely, seventy per thousand or over, and reported the results to the Association of American Physicians.

"While the views expressed by my correspondents were very antagonistic, I thought myself justified in stating that quinine is often useless and harmful in the bloody urine of malarial infection, although it was also evident that circumstances might exist in which the drug could be used. Much of the contradiction is more fancied than real, and depends upon the fact that the bloody urine may be due to many causes, such as acute renal congestion in the paroxysms owing to great distention of the renal vessels, to degenerative renal vascular changes as the result of chronic malarial poisoning, because of degenerative processes which cause the red cells to disintegrate, and finally to paroxysmal hemoglobinuria not due to malaria.

"It is evident, therefore, that quinine might be useful in one case with bloody urine and not in another, and the burden of this article is not to prove that quinine is never useful, but that it is not a 'cure-all' in

these states. That it may do damage is proved by the authorities quoted, and by the following facts, which show, I think, that my friend who wrote the editorial in the *Journal of the American Medical Association*, whoever he may be, is not so ignorant as the *Medical News* would have us believe.

"That malarial poisoning does cause nephritis in certain cases is admitted by every one. Thayer tells us that in Baltimore tube-casts were found in the urine of 17.5 per cent of the malarial cases, and Osler says that albuminuria was found in 46.4 per cent of his cases in the wards. If this is true of a point so far north as Baltimore, it probably holds with greater force for those places where the malarial poison is still more virulent. Atkinson has shown that nephritis is a sequel of malarial infection; the committee of the Tri-State Society of Alabama, Tennessee, and Mississippi has found nephritis in all cases of fatal malarial hematuria; Ralfe has done likewise; and Kiener and Kelsch have reported that there is glomerulitis.

"Admitting, then, that malarial disease produces changes in the kidneys, let us see if quinine is capable of so doing. We find that all writers of experience state that quinine, particularly in full doses, possesses distinct irritative effects on the genito-urinary tract, and I have proved that in poisoning by quinine the kidneys become congested and finally inflamed.

"Guyochin has reported cases of genito-urinary irritation after the use of quinine, and Faginoti reports a case in which there were pain in the urinary passages and the discharge of a few drops of blood on urination. Monneret has seen positive hematuria follow its use, and Rivet has observed vesical spasm and hematuria after an ordinary dose of the drug. Dassat reports the development of hematuria, with retention of urine, from cystic irritation due to quinine, and Cachere records two cases in which hematuria followed the use of quinine. In one of these, a boy of thirteen had profuse hematuria after the dose of ten grains, and a girl of seven years was affected similarly whenever quinine was used. Stillé states that quinine irritates the urinary organs, and that if any part of this tract is diseased the lesion is aggravated.

"Three facts may therefore be deducted: (1) That quinine sometimes produces hematuria in malarial disease; (2) that malarial disease often congests, irritates, or inflames the kidney; (3) that quinine is capable of doing likewise.

"This paper so far has, doubtless, seemed destructive to the use of quinine in malarial nephritis and hematuria, but it is not to be regarded as advocating that no quinine be given; rather that it be given wisely. It must be evident that hematuria coming on in acute intermittent malaria is a manifestation of blood-breakdown or renal lesion, and is a result of the congestive stage of the attack. To give quinine during the hematuria is equivalent to 'shutting the door after the horse is stolen,' and in addition gives the kidneys the irritating work of elimination. It would seem more rational to give it to prevent the next paroxysm.

"In hemoglobinuria occurring with the paroxysm there is probably less danger in using quinine than when true hematuria is present, since the kidneys are not as hindered and clogged by blood-clots; but even here it must be evident that quinine can only stop future attacks, not the one already in existence. Should the attack of hemoglobinuria be prolonged, indicating that the malarial poison is destroying the corpuscles independent of the chills, then quinine may be needed. If it is given, I believe that cholagogues, followed by a brisk purge, should be used to aid in the elimination of coloring-matter through the liver and bowel, and to relieve the kidneys of all labor which it is possible to remove. If in any case the intermittent paroxysms are so frequent as to make the quinine necessary, in view of the fact that other measures have failed, the same attention to the bowels should be given; the kidneys should be flushed out by diuretics such as the vegetable salts of potassium, and the quinine be given because the danger of the continued attacks is greater than that of renal involvement from the drug.

"The third class of cases, namely, those which are included under the severe forms of bloody urine associated with jaundice and general hemorrhages from the stomach, the bowels, and the nose, are more difficult to treat than those just discussed. They present all the difficulties which non-hemorrhagic remittents produce, and the peculiar inability on the part of the absorbents, coupled with the bilious vomiting, makes all medication difficult, let alone the complication of bloody urine.

"Much that has been said in regard to the condition of the kidneys and the contraindi-

cations to quinine in the milder forms of malaria, already spoken of, holds true with the severe form of hematuric fevers, yet here the very severity of the infection calls for quinine, although the contraindications are stronger than ever. This may be cleared up, however, by a recollection of three facts, namely: (1) that this malignant form comes on suddenly with the access of a malarial attack in a patient already broken down; (2) as an attack of hematuric jaundice without any evidence of another dose of malarial poison; (3) there are a number of remedies which are capable of doing much good before quinine is resorted to. The quinine will be needed in the cases suffering from active malarial paroxysms imposed on the subacute or chronic forms, but will not be needed in the second class of chronic cases, which should be treated by other measures directed to the relief of the dyscrasia and bloody urine.

"It seems evident, therefore, that quinine, like the tints of the artist, must be 'mixed with brains' if the best results are to be obtained, and that its routine use with blissful ignorance of its dangers ought not to be advocated; while on the other hand, no one should for a moment cast discredit upon a truly specific remedy."

SOME PRACTICAL POINTS IN THE TREATMENT OF THE CHRONIC FORMS OF HEART DISEASE DUE TO RHEUMATISM.

The London *Lancet* of December 10, 1898, contains an article on this topic by ERNEST SANSOM, of London. He tells us that often in a patient who presents himself to us after convalescence from an attack of rheumatism it is found there is something wrong with the heart — either morbid enlargement without other signs, or murmurs indicative of incompetence of the mitral or aortic valves. It should be realized as the first practical point that even though weeks and months may have elapsed since the obvious symptoms of rheumatism, it is most probable that the rheumatic disease in and about the heart is not absolutely quiescent. Slowly and without betrayal by symptoms the changes go on in the endocardium and the fibrous structures of the valve and its neighborhood. If things go well a mere thickening results, the valve curtains remaining competent; if adversely, there is contraction of the firm and thick tissue, degenerative changes supervene, and the valve becomes incompetent. But this may not be all; there may be waves of retrogression alternating with improvement, successive storms of disease with enlargements and shrinkings of the heart.

The first practical point urged by Dr. Sansom in regard to treatment is that we should realize that the problem is not the simply statical one of restoring a lack of power in the heart muscle, but a dynamical one of overcoming the influences of various factors and varying phases of disease. Take, first, the medicinal treatment. There are signs of some cardiac failure, and the question arises, shall we prescribe digitalis in some form? Many of us have had most favorable experiences of the usefulness of the drug. Suppose that the patient who has come to us has given evidence of the difficulty of breathing, of effort, of some pretibial pitting, or more marked signs of edema of the lower extremities have appeared, and possibly of basic edema of the lungs. Digitalis is given in the form of tincture, infusion, or powder, and after a few days, perhaps even though complete rest has not been enforced, there is vast improvement—the output from the kidneys has been increased, the diuresis has cleared away the dropsy, and after some days of further treatment the adverse symptoms vanish.

But the experience of a second case may be very different. Administration of the drug fairly in increasing doses during five or six days is followed by no sign of amendment. Perhaps there is evidence of intolerance in vomiting, of diarrhea, of signs of faintness, of irregularity of the rhythm of the heart; or that without any such signs the drug disagrees — it is simply inert. The pulse is not rendered slow, the tone of the artery does not improve, diuresis does not result, and the dropsy persists or increases. How are we to interpret the facts? Sansom thinks they may be briefly elucidated thus: If there be no rheumatic febrile disturbance, and if the heart tissues are not undergoing active inflammatory changes, digitalis properly administered acts well. If there be waves of active inflammatory action, circumstances not always to be readily discovered, digitalis fails. Such has been Dr. Sansom's experience. In a paper founded on precise investigation by Dr. Lauder Brunton and Dr. Theodore Cash the authors thus express themselves: "The administration of digitalis, or of drugs which act like it, to patients in a febrile condition is likely to have much less

effect on the pulse than at the normal temperature, and if the temperature be very high they may have no effect at all while this persists. When the temperature begins to fall the pulse naturally becomes slower, and this slowness is increased if digitalis has been given at the height of the fever. It is therefore evident that digitalis and its congeners, if they are given at all when the temperature is high, should be given with great care, for otherwise the medical man may be induced by the apparent inaction of the remedy to push its administration too far during the fever, with the consequence of producing too great depression of the pulse during defervescence." Dr. Sansom supplements this by expressing his own opinion that not only during periods of rheumatic pyrexia, but also when the heart structures are actively infiltrated during rheumatism, though it may be in the apparently chronic stages, digitalis is often inert or harmful.

If two, or perhaps three, days have passed without improvement the drug should be omitted and the patient advised to take perfect rest in bed. Of course, the withholding of the digitalis should be earlier if signs of intolerance arise. Now comes the question of counter-irritations or topical applications to the præcordia. Small blisters may be applied after the manner recommended by Dr. Caton, of Liverpool—one of the size of a half-crown near the heart's apex, and when the consequent irritation is subsiding a second blister of similar size close to it, and others following. Or these small blisters may be placed over the intercostal spaces. In France the thermocautery (*pointes de feu*) is most frequently employed. Though these methods may tend to relieve subjective symptoms, Dr. Sansom has not been convinced that they have any decided therapeutic effect. He thinks that there has been much more decided evidence of amendment from the topical application of the ice-bag as recommended in pericarditis by Dr. D. B. Lees. An ice-bag suspended from a cradle should rest lightly over the heart region, a thin layer of flannel intervening. The ice-bag may be applied for periods of half an hour and removed for like periods. Usually the patient is made comfortable by these means and the heart tumult is allayed. A temporary dilatation of the heart may under such treatment subside in two or three days. A small hypodermic injection of morphine acetate or morphine hydrochlorate, from one-tenth to one-fourth grain, is a great aid to the calming and comforting of the patient. Dr. Sansom says he thoroughly indorses Dr. Clifford Albutt's commendation of this therapeutic plan, which he himself introduced in heart cases. "By the mouth opium is behind other sedatives in value, its use being attended by grave drawbacks, but hypodermically, in doses beginning at one-tenth of a grain and gradually ascending to a quarter of a grain if necessary, it is a precious means of relief. The physicians who still protest against its use are unfamiliar with the practice. There is no remedy which calls forth so warm a tribute from the patient himself." From these considerations the second practical point he insists upon is that any sign of rheumatic storm in the heart—a state of things occurring in an apparently chronic phase and obscurely indicated by symptoms—should be treated by placing the patient at rest in bed.

Sansom thinks it his duty to utter a warning note against the indiscriminate use by the non-medical public of methods of muscular exercise. In many cases of organic heart disease in their truly chronic stages these methods of increasing the physiological activity of the heart muscle are of very high value, but there is much danger in the case of the rheumatic heart even though the disease may seem to be chronic. If there be the rheumatically swollen heart—a condition of which the patient himself may be unconscious—the use of muscular exercises should be prohibited. To advise these would be equivalent to a direction to a patient with inflamed joints to run. After a period of such absolute rest exercise should be commenced gradually, for too long inactivity is of course harmful, but the question of the duration of the period of complete repose should be left to the medical adviser.

Can medicines aid the absorption of the effusions in and about the heart in the seemingly chronic stages of rheumatism? Sansom thinks it is generally agreed now that salicin and the salicylates have no directly favorable influence. Indirectly ministering as they undoubtedly do to the comfort and well-being in the acute stages and when the joints are painful, they are inert as regards any heart inflammation. He says he has some lingering affection for the old alkaline plan of treatment in the more chronic stages. He prescribes alkalies with no idea of neutralizing any morbific acid, but simply because he thinks they soften membranes, increase osmosis, and thus facilitate the work of the

lymphatics. Another plan of treatment which he believes to be of great value is the administration of small doses (one-half grain) of calomel three times a day for periods of three or four days together. In many cases he has seen what has seemed to him an extraordinary improvement under such plan of treatment.

After the systematic use of the ice-bag has been omitted it seems to be useful to apply iodine in some form over the integument of the præcordia. Painting the surface with liniment or tincture of iodine is a well known procedure. The method which he adopts of inunction of an ointment of iodide of ammonium is, he thinks, much to be preferred. A drachm of iodide of ammonium is to be intimately mixed with an ounce of benzoated lard. The ointment is rubbed into the skin over the heart region by means of a piece of flannel or a pledget of cotton-wool for two or three minutes night and morning. After the rubbing a piece of cotton-wool, flannel, or light tissue is to be kept over the surface. This ointment does not stain the skin like iodine preparations, and it causes little or no irritation, though it readily permeates. He thinks it much to be preferred to our old friend the belladonna plaster, and certainly preferable to the sticky, messy, dirty perforated abominations which some of our patients delight to disfigure themselves with. Moreover, there is no interference with the daily ablutions or affusions with sea-water, which are so generally beneficial.

ANIMAL VS. VEGETABLE FERMENTS.

AUSTIN contributes the results of a series of experiments on this topic to the *Boston Medical and Surgical Journal* of December 8, 1898. He finds that taka-diastase possesses a greater power of converting starches, in proportion to its weight, than does saliva or pancreatin, though perhaps the test was not fair to saliva, as the amount, one cubic centimeter, was arbitrarily taken as an equivalent to one-tenth gramme pancreatin and taka-diastase; since, however, only 5½ parts per thousand of saliva are solid, 5.5 milligrammes are compared with 100 milligrammes. All of these digestants are practically nullified in an acidity equivalent to that of gastric juice, so that practically no digestion can take place in the stomach from any of these digestants.

These digestants are not destroyed by the acidity of the gastric juice, and there is no practical reason why their activity should not go on after they have passed into the intestines and alkalinity is reestablished.

Taka-diastase apparently carries the process of amylaceous digestion a step farther than the other two, forming dextrose instead of maltose. In how far this is of value he thinks we cannot say until we know more about the condition attending the secretion of succus entericus, which contains the major part of the invertin, and whether it is ever absent.

CONSTIPATION AND ITS MODERN TREATMENT.

HERSCHELL in the *Clinical Journal* of November 30, 1898, states that he is afraid that the rising generation of medical men are in danger of losing much of that *finesse* which enabled our forefathers with but a limited selection of drugs to adapt them as perfectly as they did to the circumstances of the case. The art of prescription writing for a perfect laxative pill—a pill whose action should be at once pleasant and adequate—is almost a lost one. There was generally a reason for each ingredient in their time-honored formulæ. Take, for example, the pilula aloes et myrrhæ of the British Pharmacopœia. How many young practitioners could tell offhand the utility of the gum-resin? And in consequence, because they cannot see the use of it (practical therapeutics having been relegated to a very secondary place in their scheme of education), they rarely prescribe it. And yet, as a matter of fact, it is of extreme value, and gives to the pill its characteristic action—that of a laxative without a tendency to be followed by subsequent constipation. It was found by clinical experience that the addition of a resin, devoid of active purgative properties, prevented to a great extent reaction in the direction of constipation by possibly acting as a tonic to the mucous membrane, and so the pil. aloes et myrrhæ came into being. In the treatment of chronic constipation drugs are of extreme use, but to make them reliable tools we must thoroughly understand how they act and what we are going to do with them. The medicinal substances which we shall find advantageous to use may be arranged in the following groups:

1. Those which excite peristalsis. Of these we have nux vomica and Calabar bean.

2. Those which relieve spasm. In this group we find belladonna, the bromides, valerian, and perhaps asafetida.

3. Drugs which increase the secretions of the gastrointestinal tract. The most useful of these are chloride of ammonium and phosphate of soda.

4. Medicines having a beneficial effect on the neurasthenic condition — valerianate of zinc, nitrate of silver, ergot, arsenic, and the glycerophosphates of soda. The glycerophosphate of lime must be avoided, as it has a distinctly constipating effect.

5. Laxatives. These are never to be used except in special circumstances.

With these few drugs at our command we are in a position to very materially assist the action of the other means which we are using. If there is enterospasm we shall give belladonna or one of the bromides. If the peristalsis is defective, nux vomica will be found useful. When the stools are dry and hard we shall employ with great advantage drachm doses of phosphate of soda in combination with a bitter, and perhaps taraxacum; or we shall take advantage of the undoubted properties of chloride of ammonium in increasing the intestinal secretions. We owe not a little of the knowledge which we possess as to the action of the latter drug to the valuable researches of Lockhart Gillespie. In addition to its action upon the intestinal tract it appears to have the remarkable power of removing any dyspeptic symptoms which may be present. This is probably due to its action in increasing the amount of hydrochloric acid in the gastric secretion.

But the question will probably now be asked, how are we to secure adequate actions of the bowels during the course of the treatment?

From the first we must make up our minds to abandon the use of purgatives. We must procure the necessary actions:

1. By the use of a small daily enema of cold water. Whilst enemata of hot water distinctly relax the intestinal tissues, cold water acts as a tonic, and may be used with practical impunity. At first we may give a small injection every day, and as by degrees the intestines take on their normal function it will be required less frequently until we can dispense with it altogether. For slight cases this will be sufficient.

2. The oil enema. This has been already alluded to in the paragraph upon removing the contents of an impacted rectum. But it has even a more important use as a means of procuring a daily action of the bowels, and should be immediately resorted to in cases which resist the simple enema of cold water. For these cases the best way of administering it is by means of an ordinary glass funnel. A long colon tube is passed up into the bowel about twelve inches, and is connected by a short length of tubing to the funnel in question. The patient is lying on his side in bed with the pelvis elevated a few inches. The physician, standing by his side, holds the funnel with the left hand a foot or so above the patient, while with the right he slowly pours into it the oil, which has been previously warmed. The oil should be introduced into the bowel very slowly, at least fifteen minutes being taken up in doing so. About ten ounces will be sufficient for an adult, and two or three for a child, according to age. The oil should then be retained as long as possible, and if the injection be given at bedtime the action of the bowels will often not take place until the following morning. The effect of one injection will usually last for several days, and often for a week, the patient having a daily stool during that period. When the effect passes off another should be given. In any case where it is desirable to procure the maximum effects these injections may be given every day. It sometimes happens that in certain cases the oil will be found to produce an unexpected purgative effect. In these cases there is probably some increased peristaltic action which hurries unduly the bile and pancreatic juice along the intestines, and these, coming in contact with the oil, form irritating soaps. It is advisable when using oil enemata to now and then administer a large alkaline douche.

THE PHYSIOLOGICAL ACTION OF CACTUS GRANDIFLORUS.

In the *Revue de Thérapeutique* of October 28, 1898, ANISTIMOFF has recorded in a St. Petersburg thesis twenty-seven experiments which he has made upon dogs. He finds that in the dose of 0.2 to each kilogramme of the animal cactus causes a marked slowing of heart and an increase of the blood-pressure. This slowing is due to the influence exercised by the cactus upon the inhibitory centers of the heart, and the rise of arterial pressure is due to its action upon the vasomotor center in the medulla and also to stimulation of the nervomuscular fibers in the peripheral blood-vessels. In human beings he found that the prescription of fluid extract of cactus in the dose of three to ten drops three or four times

a day slowed the pulse in the majority of cases, but in other instances produced no modification in its rate. It increased blood-pressure and increased diuresis. Under its influence in cardiac disease dyspnea and cough were diminished. He does not think that the drug is capable of producing cumulative effect, but believes that it is particularly indicated in functional troubles of the heart, as, for instance, in Graves' disease and in nervous palpitation.

THE TREATMENT OF ASTHMA.

The *Revue de Thérapeutique Médico-Chirurgical* quotes VON NOORDEN as having stated that atropine in ascending doses is the best treatment of asthma of spasmodic type. The treatment should be continued for from four to six weeks. In his hands the method consists in administering $\frac{1}{120}$ of a grain of atropine every two or three days, and then gradually increasing the dose until it reaches as much as $\frac{1}{30}$ or $\frac{1}{15}$ grain, after which the dose may again be decreased. It is necessary that the patient should be continually under the observation of the physician to avoid accidents under this method of treatment, but with care accidents are not met with.

THE VALUE OF PHOSPHORUS IN RICKETS.

A number of years ago WEGNER (*Journal de Médecine de Paris*, Oct. 16, 1898) described the changes which are produced in the bones of animals by the ingestion of phosphorus, and for this reason supposed that it would prove a valuable remedy in the treatment of rickets. Kassowitz, who applied this theory to the treatment of infantile rickets, obtained excellent results and stated that in the dose of one-fiftieth of a grain a day the symptoms of rickets rapidly disappeared. On the other hand these statements have been contradicted by other observers. Baginsky, of Berlin, has employed phosphorus to combat rickets and observed eight cases out of seventy-two which presented slight amelioration.

Leray observed twenty-five cases, amongst which seven seemed to be benefited, while in the remaining eighteen the results obtained from the administration of phosphorus were doubtful or of no value.

Weiss, of Prague, in seven cases, obtained only one positive result. On the other hand, Swetchen has observed forty-one cases with four cures, twenty-four improvements, and the balance were not benefited. In other words, it is evident that phosphorus is not by any means a specific in this condition, but that it may be employed as an adjuvant to other treatment.

In the *Revue de Thérapeutique Médico-Chirurgical* of November 1, 1898, Lop, of Marseilles, makes a report upon the influence of rest upon rickets and upon its treatment by phosphorus. The formula which he employs, according to the method of Kassowitz, consists in:

℞ Phosphorus, 1-20 grain;
Lipanin, 1 ounce;
Powdered sugar and powdered gum arabic, of each ½ ounce;
Distilled water, 1½ ounces.

A small teaspoonful of this represents about one milligramme of phosphorus. In certain cases in which the digestive apparatus is in good condition Lop administered in addition and as a vehicle for the phosphorus cod-liver oil. He ordered two grains of phosphorus dissolved in a quart of the oil, and then gave small doses of the mixture—one or two teaspoonfuls. Should there be any evidences of gastrointestinal or other derangement produced by the phosphorus treatment, it is temporarily stopped for from four to twelve days. The patients which he treated, for a sufficient length of time to gain any definite knowledge concerning them, ranged in age from eighteen months to four and a half years. Their rachitic symptoms were marked, being cranial tabes, large bellies, dilatation of the stomach, diarrhea, defective dentition, and incomplete growth.

In a large proportion of the cases good results were not obtained until after the treatment had been maintained for a good many months. Seven of his patients presented very marked improvement after eighteen to twenty months of treatment. Five others showed moderate symptoms of improvement after ten months, and one of his patients died of lienteric diarrhea.

THE TREATMENT OF ANEURISMS OF THE AORTA BY HYPODERMIC INJECTIONS OF SERUM GELATIN.

HUCHARD reports upon this treatment in *La Presse Médicale* of October 26, 1898, and states that he has obtained relative cures in aneurismal tumors after twelve injections. He also cites the case of Boinet, who has

obtained unfavorable results, and a second case in which no results have been obtained by Barth. In the case of Boinet the first injection did not favor the deposition of the clot in the proper portion of the aneurism, with the result that there was contraction of the pulmonary artery followed by pulmonary tuberculosis and death. In the case of Barth the patient, a woman of forty-nine years, had an aneurism of the ascending portion of the aorta. Under the use of iodide of potassium no beneficial results occurred, and after the injections of gelatin had been made three times in one week fever developed, and after five injections (though diminution was observed in the tumor) the temperature rose still higher and a large abscess developed. The patient had symptoms of dyspnea, which became more and more severe, and death finally ensued. At the autopsy an aneurism was found occupying the ascending portion of the arch of the aorta. Coagulation had taken place in a considerable portion of the sac and also extended in the left subclavicular artery. On the other hand, there is no doubt that these injections sometimes aid in the coagulation of blood in aneurismal tumors.

Apropos of this a report made by Lancereaux to the Paris Academy of Medicine, October, 1898, is of interest. He described five patients with aneurism of the arch of the aorta, who were treated by subcutaneous injections of a solution of gelatin. This solution was composed of thirty grains of gelatin in three ounces of normal saline solution, .6 of one per cent. It was injected under the skin of the buttock and deep into the subcutaneous tissues in the dose of three ounces, and these injections were repeated at different intervals varying from two to twelve days; ten, fifteen, or twenty injections usually sufficed to produce a complete cure. In the discussion which followed his paper, Huchard confirmed the statement that these injections give good results, and stated that they are to be employed to combat otherwise hopeless aneurisms of large size, and further, that the injections cause little inconvenience, although they are somewhat painful. He also quoted a case of hemoptysis described by Rasmussan in which similar injections had been made for the purpose of controlling hemorrhage, with good results. The only danger in this treatment seemed to be the possibility that the clot while forming might in part be swept off into the general circulation.

THE USE OF CANNABIS INDICA AS A LOCAL ANESTHETIC.

The *Journal de Médecine de Paris* of October 30, 1898, states that AAROUSIN has employed cannabis indica with good effect as a local anesthetic to relieve dental pain. The tincture is diluted three to five parts with alcohol, and is introduced into the cavity of the tooth by means of a tampon of cotton. These tampons are also placed about the gum below the tooth. This author asserts that in the course of a few minutes a considerable degree of anesthesia is produced. If the alcohol is too strong the tincture may be diluted by means of hot water.

[Personally, we doubt whether cannabis indica possesses much local anesthetic power. —ED.]

THE VALUE OF METHYLENE BLUE IN THE TREATMENT OF NEPHRITIS OF A HEMORRHAGIC TYPE.

NETCHAEF (*Journal de Médecine de Paris*, Oct. 16, 1898) has written of the value of methylene blue in the treatment of nephritis of a hemorrhagic type. Seven cases of nephritis were treated by Lemoyne by methylene blue; three recovered and four were much benefited. He quotes Dehio and Einhorn as having written favorably of the influence of methylene blue in this affection, and Kramer is stated to have administered this drug in four cases in the dose of two grains given three times a day. Under its influence it is claimed that the blood disappears from the urine, the albumen is greatly diminished, and the patient's general condition is much improved.

THE DANGER IN THALLIUM ACETATE.

During the past year or two a number of the French journals have contained articles describing the value of thallium acetate for the purpose of controlling night sweats in tuberculosis. It will be remembered that the dose which was used was 1½ to 3 grains, which was given an hour before the expected sweat, and that often a single dose produced the desired result, although sometimes it had to be repeated. There seems to be no doubt that thallium acetate possesses this power, but, on the other hand, it is worthy of note that it is capable of producing alopecia, which in one case recently reported by Huchard was so well developed that complete baldness followed the use of a number of doses.—*Journal de Médecine de Paris*, Oct. 16, 1898.

THE TREATMENT OF RINGWORM OF THE HEAD.

In *Treatment* of October 27, 1898, ALDERSMITH writes on this subject. He thinks that the first duty of the medical attendant is to most carefully examine the whole scalp, and to mark out all the diseased places if the extent is not sufficient to warrant shaving the head. If there be only one or a few places, it is infinitely better to mark them by cutting the hair from them, and for one-third of an inch round them. It is useless for a medical man simply to write a prescription, and to tell the mother to look over the head and apply an ointment to the places; but he ought to find all the places, or order the scalp to be shaved, and give most minute and definite instructions to the mother or the nurse.

If the patches are extensive, and over most of the scalp, shaving or close clipping is advisable; but it is well to leave a small fringe round the scalp, so that it may appear under a cap. Tinea, as a rule, does not invade the edges of the scalp, and a fringe can generally be left.

The second point to remember is—especially if there be only one or a few patches—that the spread of the disease ought to be stopped at once. Many cases are allowed to spread from one or two small places over most of the scalp from forgetting to use a parasiticide over the entire scalp. It is essential to treat the whole scalp, even if only one place can be detected. Therefore, after the places have been marked, the head should be thoroughly washed with Jeyes' or carbolic soap, and, after drying, a lotion or ointment should be well applied. Sulphur (precipitated) is the best thing to use for this purpose, mixed with salicylic acid or white precipitate:

(1) Sulphur. præcip., ʒ j, ad ℥ iss;
Acid. salicyl., gr. xv, ad gr. xx;
Adip. benz., q. s. ad ℥ j.
M. ft. unguent.

(2) Sulphur. præcip., ʒ j, ad ℥ iss;
Hydrarg. ammoniati, gr. x, ad gr. xv;
Creasoti, ♏ xv, ad ♏ xxx;
Adip. benz., q. s. ad ℥ j.
M. ft. unguent.

(3) Sulphur. præcip., ʒ j, ad ℥ iss;
Glycerin., ♏ xx;
Spirit rect., ʒ ij;
Acid. salicyl., gr. v, ad gr. xv;
Aquæ, q. s. ad ℥ j.
M. ft. lotio.

A lotion or ointment should be used to the scalp every night, and ringworm very rarely spreads if either of the above have been properly applied; but of course other small places, which were just commencing and not seen at the first examination, may be found during the next fortnight, and must be marked and treated. When all spread has ceased, carbolic glycerin (1 in 8) is very useful to apply to the rest of the head.

If the places be few, it is far better to mark them out, and to use some strong lotion or ointment to them, than to shave the head and treat the whole scalp with the same ointment. If a boy, it is better to have the rest of the hair cut moderately close (half to one inch); if a girl, it is quite possible to cure ringworm without cutting the rest of the hair, but most careful examinations must be made from time to to time to see that every place is under treatment.

In a short article it is impossible to describe all the treatments for ringworm, or even to fully describe many, with all the notes about isolation, prevention of spread to other children, the use of caps, and the proper way to apply ointments and lotions; and reference may be made to where the author has more fully described them.

One of the last remedies advised is formalin. The writer never uses it now, and believes it to be extremely painful, and often productive of scars. Croton oil, if properly applied, is far safer to use, and much less painful. Personally, he usually cures small places of tinea by inflaming them with croton oil, and refers to this treatment later on.

The usual parasiticides employed are as follows:

Goa powder (chrysarobin) may be rubbed into the places with water or lemon juice, or used in an ointment or lotion; but it should not be employed for extensive forms of the disease, and is rarely successful in chronic cases. The following combination is useful:

℞ Chrysarobini (Kemp & Co.), gr. xx, ad gr. xl;
Acid. salicyl., gr. xx, ad ʒ j;
Olei amygdalarum, ʒ ij;
Adipis lanæ hydrosæ (lanolin), q. s. ad ℥ j.
M. ft. unguent.

Sulphur may also be added. Directions should be given to have the ointment well rubbed into the places for at least ten minutes at a time, twice a day. Precautions must be taken to prevent the ointment getting over the rest of the scalp, or on to the face. Chrysarobin dissolved in benzol or chloroform may also be used to small places; and elsewhere he has described its use.

Coster's paste:

℞ Iodi, ʒ ij;
Ol. picis liquid., ad ℥ j.
M.

This is very useful for small places, and should be applied till a scab forms; then this must be picked off, and the paste again applied, till all the diseased stumps are removed.

Creosote may be used with turpentine, or iodine. A mixture of creosote and iodide of sulphur is good—twenty to forty grains in one ounce of creosote or a mixture of creosote (two parts) and turpentine (six parts).

Iodide of mercury is an excellent parasiticide for small places.

℞ Hydrarg. iodi rubri, gr. iv, ad gr. vij;
Sodii iodidi, ʒ ss;
Spirit. chlorof., ʒ ij, ad ℥ iv;
Aquæ, ad ℥ j.
M. ft. lot.

This must be well soaked in, but must not be strong enough to produce scabbing, and ought only to be employed for small places.

Perchloride of mercury he never employs; it is inferior to the red iodide, and more likely to cause poisoning if used too strong.

Salicylic acid is a safe and excellent parasiticide, and one frequently advised. A good formula is:

℞ Acid. salicyl., gr. x, ad gr. xxx;
Etheris, ʒ ij;
Spirit. vini rectificati, q. s. ad ℥ j.
M. ft. lot.

This may be soaked into the places, and had better be used only ten grains to the ounce at first, and then increased. It may also be dissolved in chloroform and ether for small places, as this dissolves the fat, dehydrates the hairs, and often causes them to come out.

Salicylic acid can be freely used in ointments (twenty grains to one drachm) combined with precipitated sulphur (1½ to 2½ drachms), and is most useful for extensive forms of the disease, and in young children.

Sulphur is one of the best applications, and may be used as above, or with white precipitate.

℞ Sulphur. præcip., ʒ iss, ad ℥ ijss;
Hydrarg. ammon., gr. xv, ad gr. xxx;
Acid. salicyl., gr. 20, ad ʒ j;
Olei amyg., ʒ ij;
Lanolin, q. s. ad ℥ j.
M. ft. ung., or it can be mixed with benzoated lard.

Oil of turpentine can be used with iodide of sulphur and creosote. Some speak highly of first washing the scalp in hot water, then soaking with turpentine, and, while still wet, applying tincture of iodine; but this treatment, like most others, often fails in completely curing ringworm.

The essential point in treatment is to persevere with the lotion or ointment for some time, and not to continually change the application, for it must take two or three months to get out all the diseased stumps, and for the new hair to grow. Only perseverance and great care in finding and marking all the places will insure success.

AN EXPECTORANT MIXTURE.

The *Journal de Médecine de Paris* of October 30, 1898, states that the following formula is a useful one for the purpose of facilitating expectoration:

℞ Apomorphine hydrochlorate, 2 grains;
Dilute hydrochloric acid, 20 minims;
Simple syrup, 2 ounces;
Distilled water, 6 ounces.

For an adult one, two, or three teaspoonfuls of this mixture may be taken every two or four hours, or a small coffeespoonful may be given to a child, equally frequently. The idea is to give enough to cause the expectorant effect without nausea and vomiting.

A CLINICAL CONSIDERATION OF THE USE OF THE IODIDES IN CHRONIC PARENCHYMATOUS, AND OF CREOSOTE IN SUPPURATIVE, NEPHRITIS.

Under this interesting title WEBER writes in the *Post-Graduate* for October, 1898. He tells us that after sufficient clinical observations of the good influence of small doses of the iodides in certain forms of chronic nephritis during the last eighteen years, and the value of creosote in the medical treatment of inoperable surgical kidney in the past six years, he believes he is justified in drawing the following conclusions:

The iodides given in relatively small doses, three or four times daily, and continued for many months and even years, have the power to retard, modify, and improve subacute and chronic inflammatory processes concerning the connective tissue of parenchymatous organs like the kidneys, the liver, the lungs, and particularly the sclerotic disease of the arterial vessels.

It appears that this salutary effect is brought about by direct inhibition of the proliferation of the connective tissue, as well as by subsequent induction of disintegration and fatty metamorphosis of infiltrated corpuscular elements and the removal of the same.

It is reasonable to hold that the drug manifests and develops its activity through the lymph channels and spaces of the affected organs by direct action upon the irritating substances, by stimulating the vasomotor nerves and increasing the functional activity of the parts.

The favorable influence of the iodides can be clinically demonstrated, and is more decided in arterial sclerosis than in similar disease of parenchymatous organs, and will show itself frequently, whether the underlying cause is gout, alcoholism, or syphilis. In cases with a syphilitic history, however, it is well to give larger doses of the iodides for a while—*i.e.*, from ten to fifteen grains, three times a day.

Creosote in doses from two to four to six grains, three times a day, steadily administered, he recommends as a safe and trustworthy remedy in suppurative disease of the urinary organs. Guaiacol carbonate in similar doses will do as well, and may be used when creosote is not borne by the stomach. He has found them to reduce suppuration and fever considerably, improve nutrition, and help the patient greatly in cases which had passed the limits of surgical interference.

Professor Ramon Guiteras, in discussing Weber's remarks, said that the paper just presented was scientific as well as practical, and had the merit of presenting observations extending over a very long time. He had had very little experience with the iodides in chronic parenchymatous nephritis. Many of the old cases of Bright's disease seen by him at the City Hospital had improved very decidedly under the use of iodides, but he had ascribed it to a syphilitic element in them. A number of excellent authorities made the statement that the iodides were useful in all cases of Bright's disease. Senator, of Berlin, was one of the clinicians making this assertion. He states that it seems to act beneficially whether or not arterial sclerosis is present, and that it probably acts directly on the blood-vessels, on the inflammation itself, or upon the blood-pressure in the kidneys.

Referring to suppurative nephritis, or rather to pyelonephritis, dependent upon tuberculosis of the kidney, he said that the two drugs which had seemed to him to work best were creosote and guaiacol. Both of these seemed to have an antibacillary action, or at least seemed to limit the production of or neutralize the effects of the toxins produced by the tubercle bacilli. Under this benign influence the lesion in the kidney improved. In treating tuberculosis of the prostate, seminal vesicles, and bladder, he had obtained good results from creosote.

THE TREATMENT OF DISEASES OF THE STOMACH.

The *British Medical Journal* of October 29, 1898, contains the opening address on this topic delivered by HERSCHELL at the recent meeting of the British Medical Association. He thinks that the agents which are generally useful in the treatment of diseases of the stomach are: Electricity in its different forms; massage and mechanical-therapeutics, such as movements, vibration; hydrotherapeutics, both as a means of improving the general health, and as a local treatment to the stomach in the form of lavage, spray, or douche; local treatment to the stomach by the gyromele of Turck. To these, he thinks, we must add drugs when used not for their influence upon the chemical processes of the stomach, but when administered for their tonic action on the muscular or nervous tissues of the body respectively.

First of all, as regards electricity: The author takes this first because it is a particularly happy example of a method of treatment with respect to which there is a difference of opinion. On the one hand, we have the evidence of many medical men of the greatest reliability who habitually use it in the treatment of atony of the stomach and allied conditions; and, on the other hand, we have a number of records of experiments made in the physiological laboratory where the operator could not succeed in producing contraction of the muscular substance of the stomach, whether the electricity was applied by the use of external electrodes or directly to the mucous membrane of the stomach. Hemmeter alone has apparently succeeded in demonstrating by his intragastric bag, fitted with double electrodes, that contraction of the stomach could be produced with electricity, but only with such a strong current that it would probably prove hurtful to the individual.

We have also on this side of the question a statement of Prof. Clifford Allbutt, who says: "Electricity may be found useful some day in atonic cases, but as yet I have seen no definite good from its use, whether internal or external; other physicians seem to have been more fortunate." A statement like this in a book which claims to be an authoritative

exposition of current medical views is much to be deplored; it must infallibly prevent many men from paying that attention to this valuable agent which it deserves. It also shows us how very important to the progress of medical science are exchanges of individual experience. Any one who will study the current literature of the treatment of diseases of the digestive organs must come to the conclusion that the clinical evidence in favor of the beneficial effects of electricity in atonic conditions of the gastrointestinal tract is overwhelming.

But all the laboratory experiments quoted must not be taken as conclusive. Many of the earlier ones were performed by medical men without that special experience of vivisection and the methods of the biological laboratory which alone can insure the absence of fallacies. And in this respect they unfortunately resemble a good deal of the so-called research work of the present day, which floods our journals with a host of crude theories and ill-digested facts. It is possible to reconcile this conflicting evidence if we assume that galvanism probably produces its undoubted good effects by acting not directly upon the muscular substance but upon the nerve supply of the stomach and intestines.

Having held this view for many years, Herschell has been in the habit of treating cases of atony of the stomach mainly by the application of the continuous current to the solar plexus and to the ganglia of the sympathetic and vagi of the neck. The application is made in the following manner: The patient is placed upon his back upon a couch, and the negative electrode applied to the nape of the neck, the anode being placed upon the epigastric region. Both electrodes are flat, flannel-covered plates, having each an area of twelve square inches, and remaining stationary during the application, which consists of from three to fifteen milliamperes passed for from five to ten minutes. The electrode is then removed from the nape of the neck, the rheophore attached to a three-inch disk electrode, the epigastric plate remaining in position. The current is then reversed, and the disk applied for one or two minutes in succession to each of the ganglia of the sympathetic in the neck, a current strength of one or two milliamperes only being employed.

This is a part of Herschell's routine method of treating atony of the stomach, and he has had no reason to complain of its want of efficacy. He very rarely uses the intragastric application of electricity, convinced as he is that it is not the application of galvanism to the ends of the nerves in the stomach that helps the patient, but the galvanization of the ganglia from which these nerves proceed.

Herschell took this opportunity of drawing attention to a special form of electric application which he has recently found to be very useful in the treatment of atony of the bowel and constipation. It is a primary coil, such as is constructed for giving faradic baths, and not only is wound with very thick wire, but is capable of giving very slow interruptions. It appears to really set up peristaltic action in the intestines. He has on several occasions seen its application cause an immediate stool. It also acts quite as efficiently as massage and muscular exercises in restoring tone to the abdominal muscles. In using it he places an indifferent electrode on the buttocks, and applies the other pole with a roller electrode over the abdominal muscles and over the intestines, following the curve of the colon, using interruptions of from 120 to 200 per minute. It has also given good results in cases of atony of the stomach.

The next agent which comes before our notice is massage and its congeners, gymnastic and other mechanical means.

Massage of the stomach is a mode of treatment which has its advocates and its opponents. Against it we have von Ziemssen and Rosenheim, whilst in its favor are, among others, Professors Ewald, Boas, Riegel, Zabludowsky, and Sceri. According to Hemmeter, it may be used:

1. On an empty stomach before breakfast to strengthen the muscular power of the stomach.

2. Three or four hours after a meal to assist in the expulsion of chyme, or to mechanically mix its contents.

According to the same author, it may be usefully employed:

1. In disturbance of the motor function depending on atony of the walls.

2. In stenosis of moderate degree.

3. In chronic gastritis with reduced secretion.

4. In gastroptosis.

5. In certain cases of nervous inhibition of the peristaltic movements.

Vibration of the stomach is a mode of treatment to which Herschell has paid a good deal of attention, and which he will describe in detail in a paper which he hopes to have an opportunity of reading shortly. Gymnastic exercises for strengthening the abdominal

muscles are chiefly useful in the treatment of gastroptosis.

In the treatment of the atony of the stomach, Herschell has on many occasions seen much benefit derived from douching the stomach alternately with hot and cold water. Although this can be done with the ordinary stomach-tube and funnel, it is much more convenient to make use of an apparatus which provides for the return of the liquid introduced into the stomach, and allows the lavage to be a continuous process. The best arrangement for this purpose is undoubtedly Turck's double-current stomach-tube, but an efficient substitute can be made by cementing together side by side two ordinary red-rubber stomach-tubes, one to conduct the fluid into the stomach, and the other to take it out again. It is a very important point to bear in mind that the afferent tube must be of smaller caliber than the efferent one, otherwise the risk is run of overdistending the stomach. In my own practice I connect the afferent tube with two separate reservoirs containing respectively water at 100° F. and cold water, by means of the two-way tap used by hair-dressers for shampooing. By this means one can effect the gradual change of the hot to the cold douche, and *vice versa*. Herschell usually gives a séance of ten minutes' duration, changing the temperature of the water every sixty seconds.

Professor Turck, of Chicago, has devised a very valuable improvement in the apparatus, by providing the end of the afferent tube with a bulbous extremity perforated with minute holes. By this means an introgastric spray is produced.

Under the head of dietetics we have several clinical problems of great interest. The first of these is the proper diet to be given to cases where the secretion of hydrochloric acid is in excess. We are here confronted with the following dilemma: A diet of proteids would theoretically appear to be indicated, since:

1. Meat and other albuminous substances are readily dissolved by the hydrochloric acid.

2. These articles of diet will combine to a greater extent with, and hold in combination more of, the free hydrochloric acid, thus diminishing gastric pain and irritation.

3. The diastatic action of the saliva will be inhibited almost as soon as starchy food reaches the stomach, instead of continuing for half an hour or so as in the normal stomach, and experiments have shown that this cannot again be perfectly revived in the alkaline duodenum. Therefore starch food must be almost useless to the organism.

Yet, if we put a patient on such a diet of proteids, although we bind a large quantity of free acid, we may possibly encourage its hypersecretion by the law that Nature when able responds to the demands made upon her. The continued call for hydrochloric acid to combine with and deal with the albuminous material upon which we are feeding the patient will certainly tend to hypertrophy the glandular elements of the gastric mucosa, and the last state of the stomach will be worse than the first. It is, therefore, more than probable, theoretically, that hyperchylia will be perpetuated by a proteid diet. The alternative will consist in the administration of a carbohydrate diet partially dextrinized, at the same time neutralizing the greater part of the hyperacidity of the stomach by large doses of alkalies.

The second great problem in practical dietetics is the subject of the administration of predigested foods, and with it may be profitably discussed the use of pepsin, pancreatin, and other digestive ferments. According to present ideas, it is quite superfluous to give peptonized albumins as long as the motor power of the stomach is normal, and as long as we are certain that duodenal digestion is unimpaired. Even when the power of the stomach of emptying itself into the duodenum has been lost, as in cases of pyloric stenosis, we shall probably be wasting our time in converting the food into peptone, since the investigations of Cahn have demonstrated that in these cases no peptone is absorbed from the stomach. In his own practice Herschell agrees with Hemmeter in confining the use of peptone and albumose to cases where the ordinary diet is found to be insufficient to preserve the nitrogenous equilibrium of the body.

Herschell does not think that pepsin by the mouth is ever indicated, nor can he conceive of any circumstance where it can do good, except as a local application to the gastric mucous membrane. In nearly all cases where pepsinogen is really absent, there is also such deficiency of hydrochloric acid that a sufficient quantity of the latter could not be given by the mouth to digest even a small meat meal when conjoined with the pepsin administered.

Pancreatin can only be given with advantage in the exceedingly rare cases where there is a complete absence of hydrochloric

acid in the stomach, as it is completely destroyed by normal gastric juice. But in these cases it is probably a doubtful benefit, since in order that the pancreatic digestion may take place in the stomach, we must provide an alkali such as bicarbonate of soda; and as the acidity of the gastric juice is undoubtedly one of the chief stimulants to the pancreatic and duodenal secretions, we may be very seriously affecting the digestion in the small intestines.

An important exception is to be found, however, in the taka-diastase. Professor Ewald has pointed out to us that deficiency in the amount of salivary ferments is a matter of extreme rarity, but circumstances not infrequently combine to prevent it from carrying out its work. It may be that by imperfect mastication, or owing to defective teeth, the flow of a proper amount of saliva is not excited, but by far the most frequent obstacle is the presence of an abnormal amount of hydrochloric acid in the stomach, such as we get in ulcer, hyperchlorhydria, and some other conditions. This, as we have already pointed out, inhibits the action of the salivary ferment, and consequently in these cases there will be indigestion of the starchy part of the food. By the administration of taka-diastase and alkalies we are enabled to give these patients a diet containing a large proportion of carbohydrates if we wish to do so.

THE TREATMENT OF MOTOR DEFICIENCIES OF THE STOMACH.

In the *British Medical Journal* of October 29, 1898, EWALD of Berlin tells us that the only internal remedy for motor conditions at our command is strychnine. We can do something mechanically for the food stagnation in the stomach and for the muscular atony by lavage, stomach douches, and massage vibration and electricity. Where these remedies fail, nothing is left but gastroenterostomy, switching, so to speak, the stomach out of the digestive tract to a great extent. Ewald especially warns us under these circumstances against the too long continuance and too frequent employment of washing out of the stomach. Where lavage does good, it does so very soon; where it does no good, patients easily suffer in their general nutrition, and this may go on to symptoms of inanition, from the continued removal of a certain amount of material intended for nutrition.

A last point that we have to consider are the neuroses of the stomach, those dyspeptic, colic-like symptoms in the region of the stomach which are caused by a disturbance of the nervous apparatus of either local or central character, and only secondarily proceed from an affection of the glandular or muscle mechanism; this last being often of so slight a character that it completely escapes our diagnostic methods. Here may be classed nervous dyspepsia, nervous hyperemia of the stomach, the anomalies of secretion that rest on a nervous basis (hyperchlorhydria and hypochlorhydria), nervous vomiting and nervous crises (*crises gastriques*). The last, however, are mostly, though not always, caused by an affection of the central nervous system.

In these cases the treatment of the gastric condition, in so far as it is not purely symptomatic, consists in the treatment of the central nervous system. In neurotic cases the affection of the nervous system must be treated by general tonic and constitutional treatment. Only after this comes the question of treating the dyspeptic symptoms, though they seem to stand out so prominently. Here, indeed, it is often necessary, after one is sure of the good condition of the gastric functions, to prescribe a comparatively hearty and plenteous diet, despite the patient's objections to it. An example of this method of treatment is the "rest cure," as introduced by Weir Mitchell. It is, however, not sufficient in many cases. Ewald has often had patients in whom he succeeded in a short time in bringing about a considerable addition to their weight, but the dyspeptic symptoms remained unchanged. In such cases the gain in weight is not due to increase of muscle substance, but to a deposit of fat and to retention of water in the tissues. Only after such patients have had a thorough course of roborant treatment in the mountains or on the seacoast, or in a well situated sanatorium for dietetic and hydrotherapeutic treatment, does real improvement set in.

So much on the general principles that must be borne in mind in the treatment of stomach diseases. Ewald selects certain special features of the treatment of these conditions.

One of the most satisfactory affections to treat is ulcer of the stomach, provided, of course, that it be not too old, and that the ulcerative process has not already given rise to cicatricial contractions and adhesions. Way back in the thirties the treatment of ulcer of the stomach recommended by certain Eng-

lish authorities was the withdrawal, as far as possible, of all food by the mouth. Recently this so-called rest cure has become identified with the name of V. Leube. Since we have found that the nutrition of the organism, even though only for a limited time, may be carried out by nutritive enemata, we have been able to go a step farther with this treatment. Ewald treats patients in whom he suspects an ulcer of the stomach as follows:

The patient is confined absolutely to bed, and for the first five or six days receives as nourishment only nutritive enemata, which are given in the usual way three to four times a day. The thirst is combated by small ice pellets, the feeling of hunger by a few drops of a cocaine solution. It is remarkable, however, how slight these sensations are as a rule.

If the pains continue at the beginning, a small morphine injection in the stomach region gives the best results. As a rule this is not necessary, as the pains cease spontaneously as soon as the mechanical irritation of the ulcer stops. This point constitutes an excellent differential diagnostic symptom for nervous cardialgia and biliary colic, which often are deceitfully like ulcer of the stomach in their symptoms. Nervous gastric pains will by the withdrawal of food be not at all, or only for the moment, influenced—that is, so long as the suggestive effect of the novelty of the treatment continues.

After no food has been given by the stomach for three to five days, according to the subjective symptoms of the patient and the general condition, then a few test spoonfuls of some easily absorbable material are given. The simplest is a thin milk gruel of some meal or other—wheat, or oats, or mandamin, or one of the many artificial preparations. If this causes no pain, the next day more is given. After three or four days other easily digestible substances are added, but at first in a more or less liquid form. Then the consistency of the foodstuffs is increased and the nutritive enemata become fewer in number.

After the first trial, however, should pain occur, then exclusive feeding by the rectum must be resumed, and in some cases it may be kept up for ten to fourteen days. We cannot hope in such cases, however, to retain our patients in nutritional equilibrium for so long a time. A considerable loss of weight ensues, and Ewald has found by careful observations of organic metabolism that the body loses a considerable amount of nitrogen. This loss is, however, of little importance and is soon made up for, and the original body weight far outstripped when the patient is able to eat plentifully without pain.

This method of treatment should be carried out wherever it is possible. It gives such excellent and sure results that one can say that where it fails there must be complications present—old cicatrices, especially at the pylorus, perigastric adhesions—or else that some other affection, whose seat is perhaps not in the stomach at all, must be the cause of the pains.

Of the other methods of treatment—bismuth, argentum nitricum, iodine, iodide of potassium, orthoform, and so on—he says nothing.

The good results of the method described above occur, it is true, only in recent cases; older cases, with deeply burrowing ulcers, with prominent thickening of their edges, with stenosis of the pylorus, or other contractions, the hour-glass form and the like, can only be permanently relieved by operative measures, though the setting the stomach at rest causes passing relief from pain. It is, of course, understood when surgical relief is sought that the conditions must be favorable—that is, that the ulcer must be situated where the surgeon can get at it and treat any sequelæ that may result from its excision.

As to the indications for surgical interference, they were discussed at the last Surgical Congress in Berlin. Ewald's own experience justifies him in accepting Leube's indications in this matter; they are as follows:

In gastric hemorrhage, if the bleeding continues or occurs repeatedly and resists treatment.

When internal medication fails to relieve severe pain, and persistent vomiting and inanition are setting in.

In perigastritis and abscess in the neighborhood of the stomach (subphrenic abscess).

In perforation into the abdominal cavity as soon as the patient is able to stand the operation.

There are a series of successful operations for perforated gastric ulcers in the literature. Out of six cases of gastroenterostomy operated on by Ewald's advice for ulcer of the stomach and its consequences (stenosis of the pylorus, hour-glass stomach, perigastritis), only one died, a mortality of 16.6 per cent; in cases of gastrectomy for ulcer also but one death, a mortality of 14.3 per cent. Meanwhile, it must not be forgotten that any

operation upon the stomach is a serious one, and that a number of favorable circumstances must not combine in order to assure successful results. Especially in bleeding from the stomach is the question of operative interference hard to decide, and the selection of the time for it difficult. On the one hand, even severe hemorrhage may cease suddenly; on the other, the finding of the bleeding vessel in the stomach is often extremely difficult and requires specially favorable conditions. In desperate cases of gastric hemorrhage, in which ordinary internal remedies such as ergot, morphine, chloride of iron, etc., do no good, Ewald has often seen prompt cessation of the bleeding after lavage of the stomach with ice water. This not only removes the decomposing irritant blood-clots that have gathered, but has a direct contractile effect upon the blood-vessels and favors thrombus formation. It is best to carry out the lavage after previous cocainization or after a small injection of morphine, so as to forestall tendency to vomit.

Out of the large chapter of neuroses of the stomach Ewald selects but one group—nervous gastrosuccorrhea, nervous gastric hypersecretion. It has nothing to do with the hyperchlorhydria of gastric ulcer, or with the stagnation of superacid stomach contents in atonic processes or in stenosis of the pylorus, though it is often confused with these. There is question in it of a stomach not increased in size, at a time when digestion is not in progress, especially during the night, secreting an excessive amount of gastric juice. This gastric juice may be normal, or contain too much HCl, but it is always, and this is what is characteristic of it, free from stagnation products—that is, from remains more or less of preceding meals. There is found in such cases in the stomachs of fasting patients a clear or but slightly cloudy fluid, of considerable amount, which has all the properties of normal gastric juice. This fluid irritates the gastric mucous membrane and causes severe pain, which at times wakes the patients from sleep. These pains diminish or disappear if the patient takes food, and so neutralizes the acidity of the secretion. After awhile these pains recur, and so have a certain similarity with the pains in ulcer of the stomach, from which, however, they may be differentiated by the fact that they occur at a time when the stomach is normally empty. Patients get the idea that the affection may be cured by a rigid dietary; they eat little, they sleep badly, other nervous symptoms set in, and they run down in health. Should the diagnosis of ulcer of the stomach be made the treatment Ewald has described above will of course be unsuccessful. The diagnosis can be made with assurance from the finding of a large amount of normal gastric juice in a fasting stomach, when, at the same time, all symptoms that point to stenosis or dilatation of the stomach or to gastric ulcer are absent.

The treatment of this condition is, like that of all neuroses, twofold: First, tonic and hygienic regulations for the general condition, hydrotherapy and climatotherapy. Secondly, symptomatic treatment of the stomach. The ordinary so-called sedatives—the bromides, zinc, belladonna, codeine, morphine, hyoscyamus—are all of no use, Ewald asserts from a vast personal experience. His best results have come from regular evacuation of the fasting stomach, and a spraying immediately afterwards of the gastric mucous membrane with a half-per-cent solution of $AgNO_3$. Whether we accomplish this spraying by simply allowing the solution to flow in, or by means of the stomach douche or Einhorn's stomach spray, is a matter of indifference. During the day he gives the patient every two hours a teaspoonful of a five-per-cent solution of potassium iodide and bicarbonate of sodium, and allows only rectal alimentation, in order to avoid all irritation of the gastric mucous membrane. Even this method is not always successful, and does not guarantee against relapses, but it is the most efficient in his experience.

One of the most serious of the neuroses is hysterical vomiting. Cases occur in which for weeks every attempt to nourish the patient fails. Every bit of solid or liquid food will be immediately vomited, and rectal enemata, despite the addition of opium, will be at once ejected, or if retained do not serve in the least to make the stomach more tolerant of food. The patients get worse and worse; they emaciate to skeletons, and are unable to hold themselves upright. The condition seems to depend on a cramp of the pylorus, and nothing remains but to do a gastroenterostomy. Ewald has had the operation done in one case recently. The stomach seemed to external appearances perfectly normal. The success of the operation was excellent; vomiting ceased immediately thereafter, and the patient, a woman of twenty-three, gained five pounds in weight in the subsequent three weeks.

But the diagnosis is not always so easy, nor the success so assured, as in this case. In a similar case of vomiting and pain in the practice of a colleague, the diagnosis, because of a falsely constructed Roentgen photograph, was set down as cancer. Ewald disagreed with this opinion. There was no tumor palpable, no cancer cachexia, no glandular enlargements to be found, while there was an excess of free HCl. He preferred to think that the forty-years-old female patient was suffering from an old ulcer, with adhesion. As the pain was severe and strength rapidly being exhausted, the patient begged to be operated upon. The laparotomy showed nothing abnormal in the stomach, and the organ was not opened; there were no pathological changes around it. After the operation the patient was for a time free from all symptoms, but after a while they recurred, and permitted them to make with assurance the diagnosis of a neurosis, especially as in the meantime certain unmistakable hysterical stigmata had developed.

In conclusion, Ewald said a few words as regards the success of surgery of the stomach in the matter of malignant disease of the organ.

The surgery of the stomach was taken up very hopefully, because of the confidence inspired by the improvement in surgical technique. It was hoped that if the operation were undertaken early the chances of success would be greatly increased, and so great stress was laid on such diagnostic methods as it was thought would make very early operation possible. It seemed for a time, according to Boas's investigations, that the presence of lactic acid would furnish the desired criterion, but the hopes thus raised were rudely shattered. Lactic acid is as little specifically characteristic of cancer as the absence of HCl. That in many cases of gastric cancer lactic acid was to be found in the contents of the stomach was known to Ewald and others long before Boas's publication, but they were more prudent in drawing their conclusions. Nevertheless, Boas has the merit of being the first to lay emphasis upon this fact. The formation of lactic acid is a chemical process that takes place whenever defective HCl secretion and stagnation of the stomach contents occur. This is frequently the case in gastric cancer, but may occur in other affections. Lactic acid only occurs in cases of cancer of the stomach after serious alterations of digestion have set in, and usually a palpable tumor is present.

At present, then, quite as much as ever before, the demonstration of a tumor of the stomach, its position, its size, and its movability, are the indications for operation. If we operate more and earlier now than before, it is, as Ewald showed last year at the International Medical Congress in Moscow, not so much because our methods of diagnosis are more refined and allow of earlier diagnosis, but because of confidence in our technique we make up our minds for operation much earlier than before.

At Moscow Ewald gave the statistics of cases operated on in his hospital from 1894 to 1897—two and a half years. There were 25 gastroenterostomies with 16 deaths (64 per cent); 12 resections with 9 deaths (75 per cent); 22 gastrostomies with 12 deaths (54.5 per cent). In the last year there have been twenty more cases—11 gastroenterostomies, 5 resections, and 4 gastrostomies. Mortality respectively 64.7 per cent, 62 per cent, and 50 per cent.

In six cases after the opening of the abdomen the operation was abandoned because of extensive cancerous degeneration of the stomach and its neighborhood, although only such cases are referred to the surgeon as after careful investigation promise to give favorable conditions and results.

On the whole the results were better in women than in men, and cancers that had developed from ulcers were found more favorable for operation than others. One reason for this, certainly in Germany at least, is that among women there is very seldom an abuse of spirituous liquors; and a second reason is that cancer developed on the basis of an ulcer does not give rise so soon to the cancer cachexia as idiopathic carcinomata. In other words, there is a possibility of radical cure in about twenty-five to at most thirty per cent, and of palliative successful measures in about fifty per cent, of the cases that after careful investigation the doctor considers suitable for operation. This not very encouraging state of affairs is due to the nature of the affection, and cannot be laid at the surgeon's door.

In Ewald's opinion surgical technique has at present practically reached its limit, and its marvelous success in the treatment of non-malignant neoplasms is the best proof of this. If we have no better results to report, then it is due to the nature of things. The impossibility of diagnosing cancer early enough, its tendency at times to diffuse involvement of a large amount of tissue, the

insidious toxic effects of its metabolism upon the organism by which the patient's resistant vitality for operative procedures is notably lessened—all these combine to set limits to the supremest surgical skill.

ERGOT IN CHRONIC MALARIA.

JACOBI, of New York, thus concludes a paper on this topic in the *Medical News* of October 22, 1898:

There are cases of chronic intermittent fevers with large tumefaction of the spleen that, after having resisted the action of quinine, arsenic, methylene blue, eucalyptus, and piperin, are benefited by ergot.

When enlargement of the spleen is not old and not firmly established the contracting effect of ergot is noticed within a reasonable time.

The attack will disappear before the diminution in the size of the spleen is very marked.

Though temperatures after the employment of ergot remain irregular and now and then somewhat elevated, chills, as a rule, are not noticed with this elevation.

Plasmodia do not seem to disappear from the blood so rapidly as they do after quinine, when the latter is effective. But even while some are still present, the attacks being more or less under control, the patient will feel better.

Complicating local pain requires additional treatment with ice, or cold douches, or heat; chronic hyperplasia demands iodide of potassium or iodide of iron. Digestive disorders may indicate, as they often do, when quinine is expected to act, before the employment of ergot, an emetic, or a purgative, or stomachics.

An experience extending over forty years, in which he has used ergot in many instances, justifies the writer in asserting at least this much: that there are many cases of chronic malaria, apparently intractable, that will get well with ergot.

There are cases, occasionally, in which the return of elevations of temperature after the successful use of ergot makes the combination of ergot and quinine, or ergot and arsenic, advisable, though quinine and arsenic had not been successful previously.

Ergot, like quinine, probably by its sudden contracting effect on the spleen, and by the forcing of large quantities of plasmodia-laden blood into the circulation, is, in chronic malaria when hydremia and spleen tumor are excessive, capable of bringing on the very first attack of chills and fever.

Recent cases of malaria have got better or were improved under the extensive use of ergot, but many resisted a long time; that is why acute cases should rather be treated with quinine.

THE PHARMACOLOGIC ASSAY OF THE HEART TONICS.

In a recent issue of the *Journal of the American Medical Association* HOUGHTON writes a suggestive paper on this most important topic. It is unnecessary for him to call attention to the great therapeutic importance of the heart tonics, since digitalis, strophanthus, and others of the group are not universally employed by physicians in their daily practice. It is his purpose to point out some of the dangers attending the administration of these drugs, and to offer some suggestions in regard to the selection of the crude drugs and the processes of their manufacture, in order that the danger may be as far as possible circumscribed.

We are not generally accustomed to think of the heart tonics as being the most poisonous remedies employed in therapeutics; yet it is true. According to some of the best authorities the maximum dose of extract of digitalis is about one-half as great as the maximum dose of extract of belladonna; while strophanthin, the active principle of strophanthus, is three times as poisonous as atropine, ten times as poisonous as strychnine, and twelve times as poisonous as absolute hydrocyanic acid.

It would be considered dangerous pharmaceutical practice to allow preparations containing atropine, strychnine, or hydrocyanic acid to be sold, without first being subjected to careful chemical assay and standardization. The United States and other pharmacopœias give elaborate methods for the exact quantitative determination of these constituents; while owing to the fact that the contained active principles of the heart tonics are glucosides, so easily decomposed by chemical manipulation that an assay cannot be made, no directions whatever are given for the determination of the physiologically active principles of the galenical preparations, and the tests for the purity of the respective glucosides are of little value. Crude digitalis, strophanthus, etc., may be mixed to a greater or less extent with foreign material or inferior drugs when they come into the hands of the pharmacist or manufacturing chemist. By careful botanic

examination the adulterating substance can be detected, and the advisability of garbling or rejecting the lot will depend upon the extent of the impurities. Comparatively little difficulty is experienced in obtaining supplies of digitalis suitable for manufacturing purposes, since this drug is collected in civilized countries. With strophanthus seeds, however, which are imported from savage Africa, much difficulty is experienced.

In order to keep the length of this paper within reasonable limits the writer speaks mainly of the latter drug, its active constituent, strophanthin, and its pharmaceutical preparations. These will serve as types showing the proposed method of assay. About thirty varieties of strophanthus have been discovered. It is claimed that only six of these varieties contain strophanthin, while a few contain the still more active glucoside, ouabain. Holmes, of London, claims that some of the strophanthus found on the British market contains the seed of other plants. In America, however, the crude drug generally consists of a mixture in varying proportions of *Strophanthus Kombe* and *Strophanthus hispidus*. Opinions vary greatly regarding these, some authorities claiming that they are distinct species, while others believe they are merely varieties of the same thing. Preference is generally given to *Strophanthus Kombe*, since it contains about 0.95 per cent strophanthin, while *Strophanthus hispidus* contains only about two-thirds as much. The amount of contained strophanthin is partly dependent upon climatic conditions. It is a well known fact that the physiological activity of digitalis leaves varies within wide limits from year to year.

Strophanthin, having the formula $C_{21}H_{48}O_{12}$ (Arnaud), is believed to be the only active constituent of *Strophanthus hispidus* and *Strophanthus Kombe*. Some investigators, however, claim that strophanthidin also is found. Fraser and others oppose this view, believing that strophanthidin is merely a decomposition product of strophanthin. Strophanthin, like other glucosides, is easily decomposed by acids. It is readily soluble in water and alcohol, but almost insoluble in ether and chloroform. Pure or impure strophanthin, or pharmaceutic preparations containing the glucoside, when brought in contact with sulphuric acid, a trace of ferric chloride being present, yield a bright green color. This reaction is not conclusive, however, since ouabain cannot be recognized in the presence of strophanthin. Holmes, who has given this point much attention, claims that only by purchasing the seeds in the follicle and testing a seed from each follicle can a reliable preparation of strophanthus be made. An assay based on the amount of extractive contained in a given tincture of strophanthus, or other preparations of the heart tonics, is of little value to the physician, since the extractives consist largely of chlorophyll and other inert substances.

After a careful consideration of the difficulties preventing a chemical assay of the heart tonics, and of the great importance to the medical profession of some means of standardizing them, Houghton decided to experiment on living animals, believing that data might be obtained whereby the physiologic activity of the crude drug, its pharmaceutical preparations, and active constituents might be ascertained. Since it could not be taken for granted that every sample of strophanthus seeds or digitalis found on the market was active, it seemed best to adopt methods for determining, first of all, whether the specific action of the heart tonics was manifested by the sample of drug; and secondly, to find methods for standardizing them.

Very extensive pharmacological researches have shown that the several heart tonics act in much the same manner, differing mainly in degree, upon the factors concerned in the maintenance of the circulation of the blood. The most important phenomena observed are slowing and strengthening of the heart-beats and increased blood-pressure. The writer believes only two series of experiments are necessary in order to show whether a given sample of drug possesses the specific action desired, viz., the application of a solution of the crude drug or active constituent to the laid-bare frog's heart, noting the slowed rhythm, the less and less perfect diastole, increased systole, and finally, systolic standstill of the ventricle; and the intravenous injection of such solutions into dogs or rabbits, observing the variations in blood-pressure and heart-beats, as shown by graphic tracings recorded on the kymograph. Other reactions might be obtained in addition, but are not necessary. The physiological activity of each sample of drug examined should be compared with a standard sample of known strength.

A quantitative estimate by pharmacological methods of the activity of the heart tonics is a much more difficult problem than is a qualitative assay. Many series of experi-

ments were necessary in order to decide what methods were best suited for this work. Too great variation was exhibited in the results obtained from blood-pressure experiments on dogs, rabbits, etc., and such experiments are, moreover, quite complicated and difficult to carry out. The writer found that fairly accurate data could be obtained from the application of a solution containing strophanthin, digitalin, etc., to the laid-bare frog's heart, comparing the action of the drug thus tested with that of a sample of known strength. This method, however, was finally abandoned for a simpler one, which gives much better results. It seemed to him quite probable that the strength of the heart tonics could be determined from their killing power when administered to the lower animals. Accordingly, rabbits, guinea-pigs, rats, frogs, etc., were employed for determining the minimum fatal dose of the drug. He finally chose frogs as being best adapted for this purpose. Different species of frogs vary considerably in reaction to the poisons, but the same species behave much alike. He has found it best to employ frogs of a nearly uniform size for the standardization of any particular tonic. Since it is impossible to obtain on the market frogs of exactly the same size, it is best when one has a large number of samples to standardize to have the frogs separated into lots by weight, those in each lot not varying over three grammes; then he can use those weighing 10 to 13 grammes for strophanthin, those weighing 14 to 17 grammes for tincture strophanthus, those of 18 to 21 grammes for tincture digitalis, etc. Frogs weighing less than 30 grammes can be obtained at a very reasonable price from fishermen, as they are too small for the table. However, it is necessary that from the moment of capture they be handled with great care and kept in wet moss, etc., until they arrive at the laboratory, when they should be at once transferred to suitable ponds.

The method of administering the poisons and observing results may be briefly stated as follows: Dissolve the strophanthin, or tincture of strophanthus, in normal saline solution. The strength of the medicated solution should be such that the total quantity to be injected shall not exceed 0.5 cubic centimeter. The fluid should be measured by means of very slender pipettes, graduated into hundredths, into round-bottomed capsules of about one cubic centimeter capacity, from which the last drop may be taken up in a narrow pipette having a long slender point, and the injection then made through the frog's mouth into the abdominal lymph sac. Great care should be taken not to puncture the skin, as this will allow a portion of the injected fluid to leak out. After injection the frogs should be placed in wide-mouthed frog glasses, the plates containing about a quarter of an inch of water. It will be necessary to inject several series of about five frogs each for each sample of the drug to be assayed, a first series to be injected with drug of known standard strength. After testing a large number of tinctures of strophanthus Houghton found that 0.00015 cubic centimeters per gramme body weight represented fairly well the toxic activities of an average sample of tincture prepared from *Strophanthus Kombe*.

The minimum fatal dose of tincture of strophanthus prepared from various lots of drug obtained from the American market was found to be as follows:

1	.00015	8	.00015
2	.00026	9	.00022
3	.00015	10	.00017
4	.00012	11	.00016
5	.00013	12	.00015
6	.00015	13	.00025
7	.00010	14	.00033

The several tinctures were prepared by one process and with the same menstruum.

The second series are to be injected with doses varying considerably in size. The third series are to be injected after the approximate dose of poison has been found from the second series. From the third series we may almost surely fix the minimum dose. A fourth series should finally be injected, which will fix the limits of strength very closely. The minimum fatal dose should kill at least three frogs out of five. If a less number die it is best to inject another series with doses one point greater.

One very important advantage of the method above outlined for the assay of the heart tonics is the fact that various kinds and sizes of frogs may be employed at any season of the year, the only essential being that at the time the assay is made the standard and unstandardized preparations should be tested at the same time, the frogs being of exactly the same species and kept under exactly the same conditions, comparative results only being necessary, since the standard solution maintains its activity almost entirely unimpaired, as shown by tables III A and III B.

A standard tincture of strophanthus retains its strength very well, as shown by the follow-

ing tests, made on the first standard tincture the writer employed:

TABLE III A.	Minimum fatal dose.
July 6, 1897	.00015
Oct. 19, 1897	.00015+
Dec. 23, 1897	.00015
Feb. 23, 1898	.00015—
April 25, 1898	.00015

The loss in strength was so little in nearly one year that it came within the limits of error. Similar results are observed in regard to the permanence of a concentrated tincture of strophanthus.

TABLE III B.	Minimum fatal dose.
July 28, 1897	.0000037
Nov. 10, 1897	.0000037

The ease with which we may always keep on hand a standard preparation of the heart tonics greatly facilitates the carrying out of the test and the accuracy of the results as compared with those obtainable with diphtheria toxin or antitoxin, both of which latter lose their active properties in a comparatively short time.

TABLE IV.	Minimum fatal dose.
Strophanthin No. 1	.000009
Strophanthin No. 2	.000001
Strophanthin No. 3	.000001
Strophanthin No. 4	.00000062
Strophanthin No. 5	.0000001
Strophanthin No. 6	.0000001

The foregoing table shows the variation in the strength of different samples of strophanthin which were obtained from three of the best manufacturing chemists in the world. They were supposed to be pure strophanthin, yet one sample is ninety times as strong as another, the others varying between these limits. The digitalins also vary greatly in strength, but much less than strophanthin. Both strophanthin and digitalin are given daily in tablet or pill form, the amount of active ingredients being apportioned by weight. A splendid opportunity is thus provided for a sudden termination of a favorably progressing heart disease, should the patient be obliged to have his prescription refilled from a fresh bottle. The only way that such remedies can be taken with any degree of safety is to have them prepared from a stock of known physiological strength. Houghton does not dwell upon this subject too long, but desires to say in conclusion that the method of assay herein described is put forth in the hope that others will experiment along this line. He does not claim it is the best method of pharmacological assay that may be devised for this group of therapeutic agents, since he has not yet satisfied himself that it is applicable to every one of the members of the group, but he does claim that some method of assay should be employed.

THE USE OF SALINE ENEMAS IN TYPHOID FEVER.

The *Lehigh Valley Medical Magazine* for December, 1898, contains an article by WALKER, from which he thinks the following statements may be drawn:

1. For the relief of the constipation and abdominal distention of typhoid fever, the daily saline enema is the most generally useful measure that we have.

2. The irritative diarrhea present in some cases is greatly benefited by a daily enema.

3. The effect of the ulcerative process is good, and the likelihood of hemorrhage diminished by promoting cleanliness of the intestinal tract.

4. Cases receiving a daily enema are less likely to develop serious nervous symptoms.

5. The daily enema insures a certain amount of the saline solution being absorbed, thereby relieving thirst, improving the circulation, and encouraging urinary excretion.

6. In cases of stubborn hyperpyrexia the cool enema may assist in controlling temperature.

7. In relieving restlessness and promoting the comfort of the patient, the enema often acts very happily.

VARIX: ITS CAUSES AND TREATMENT, WITH ESPECIAL REFERENCE TO THROMBOSIS.

In *The Lancet* of October 15, 1898, BENNETT publishes a valuable address entitled as above.

For practical purposes, so far as their causation is concerned, varicose veins may be divided into four classes: (1) those which are congenital; (2) those due to obstruction of blood-current; (3) those caused by strain without thrombosis (traumatic); and (4) those the result of thrombosis.

The congenital cases form a large percentage of those usually met with and consist of two varieties: (*a*) those connected with the subcutaneous veins only, and (*b*) those having a direct and gross communication with the deep venous trunks. The second of these varieties is by far the more important.

As an example of the first variety, the local mass of varix often seen in the calf of the leg may be mentioned, and of the second

kind the convoluted collection of varicose veins about the inner side of the knee, which, turning toward the middle of the popliteal region, ends in a large vessel which joins the deep vein directly by passing through the normal opening in the fascia over the popliteal space.

A third variety of congenital varix is that in which the whole venous apparatus of a limb is overdeveloped, with or without corresponding increase in size of the main artery. Such cases vary in degree from what is nothing more than a little exaggeration in the size of the vessels to a morbid condition which may, without inaccuracy, be termed diffused nævus. Congenital varix is sometimes very extensive.

There is no doubt that the veins of persons who when young are subjected to abnormal and especially sudden strain, such as may occur in hard "training," in gymnastics, particularly the lifting of heavy weights, or in any violent exercise, as, for example, heavy football playing, tend to become varicose more than the veins of persons whose occupations or amusements throw less strain upon the vascular apparatus. In proportion to the strength of the individual the greater will be the tendency to the development of varicosity. The immediate cause in cases of this kind is the giving way of the vein valves, usually the proximal pair, which under condition of great general tension naturally have to bear the greatest pressure, although they are not infrequently imperfect anatomically.

The effect of thrombosis of the large venous trunks, such, for example, as the iliac vein or inferior vena cava, especially as a complication of enteric fever, in the production of general varicosity of the limb below, is too familiar to call for comment. The importance, however, of thrombosis as a factor in the causation of a certain type of varicosity in the leg is not commonly recognized, nor is Bennett aware of any mention of the matter in surgical literature.

Strains and other similar injuries of the leg or ankle followed by pain and acute tenderness down the middle of the calf, sometimes insufficient to cause more than momentary or very transient trouble, but at times enough to render the limb practically useless for a considerable period, are not infrequently followed very soon by dilatation of the saphena veins, which, if more than very temporary, passes subsequently onwards to tortuosity, with the development of characteristic varix which rarely extends above the knee, terminating generally at the point at which the great saphena of the thigh is completed by the junction of the two trunks at the upper end of the leg. The cause of this development is thrombosis of the main deep veins—*i.e.*, the venæ comites of the posterior tibial artery, etc. The primary saphenal dilatation is merely the result of the establishment of the collateral circulation. If the thrombosis clears up, or if the unaffected deep veins take up the collateral function, this dilatation is temporary only and soon disappears. If, on the other hand, as not infrequently happens, the thrombosis leads to occlusion of the deep channels, the superficial dilatation remains permanent and sooner or later a state of ordinary acquired varicosity of the leg follows, which extends, as a rule, no higher than the junction of the two branches already mentioned, and which completes the formation of the femoral saphena, as at this point the blood-current becomes so free that no appreciable change is produced higher up. The clinical importance of these cases is considerable and lies rather in the history of the cases than in the local symptoms.

For practical purposes the only immediate dangers to life arising from varicose veins are: (1) the occurrence of profuse bleeding from the "bursting" of a thinned vein; and (2) the formation of thrombus, which may either rapidly extend to the great venous channels or lead to the detachment of emboli, which if large enough may cause immediate death, or if they pass through the heart may lodge in the lungs, giving rise to pulmonary lesions which are sometimes fatal.

There is no doubt that so far as the limb below the knee is concerned, in the absence of very gross neglect, results serious to life rarely follow immediately from thrombus in varix. In the thigh and at the knee, however, the matter is altogether different, since a recent clot in a varicose vein in those regions is always a serious and sometimes a fatal lesion; in certain types of varix the gravity of thrombus cannot be overestimated.

The local conditions predisposing to thrombosis in varix are: (*a*) cysts or acute bends in greatly dilated vessels; (*b*) peculiarity of situation with regard to mobility; and (*c*) liability to injury. Now traumatic thrombus in varix almost invariably begins either in cysts, cystic dilatations, or in the acute bends of very tortuous and greatly dilated vessels. In situations in which the affected veins,

especially if very large, are continually subject to mobility—*e.g.*, alternate bending and straightening—thrombus is prone to form. The effect of traumatism as a cause of thrombosis is too familiar to require comment.

The tendency of thrombosis in varix to spread and invade the great deep venous channels increases with the size of the vein, the absence or inadequacy of the vein valves, and especially with the existence of a gross lateral communication between the part in which the clotting occurs and the main deep venous channel nearest in relation to it. The liability to embolism will of necessity be increased by the same condition; upon these conditions, therefore, may be said to depend the gravity of thrombosis in varix. Of the constitutional states predisposing to thrombosis it is unnecessary to speak; they act in the same way, but with more force, in varix as they do under normal local conditions.

SOME DETAILS IN POSTERIOR GASTROENTEROSTOMY.

BARKER (*The Lancet*, Nov. 12, 1898) calls attention to the fact that some operators of large experience who in the past have done many anterior gastroenterostomies are now giving it up in favor of the posterior method. And one, Professor Carle, of Turin, writing at the beginning of this year, claims to have done his last twenty-three posterior gastroenterostomies consecutively without a death, and puts his gross mortality at 3.8 per cent for non-malignant cases. It may be objected to this series that it only contains non-malignant and consequently less severe cases. But, on the other hand, it probably gives a better idea of the intrinsic risks of gastroenterostomy *per se* than one including malignant cases, many of them probably operated on in the last stages of an exhausting disease.

It is hardly ever necessary to make in the first instance an opening in the muscular wall of more than two inches. The skin wound may be double that length. But with one or two fingers in the abdomen the stomach can in most cases be explored adequately, and during this exploration there is a minimum of exposure of the viscera and very little chance of prolapse of bowel.

Barker then mentions two modifications of the usual operation which he finds save time and a good deal of unnecessary manipulation of the field of operation. Although disclaiming wholesale belief in the use of Murphy's he thinks that in this particular case of posterior gastroenterostomy it has great advantages. Its use certainly makes an operation, which without it is very difficult and tedious, comparatively easy and short. Besides, some of the objections to its use in the anterior operation have less weight in the posterior. Two drawbacks to the use of the button in the anterior operation occur at once to any surgeon who has done many of these operations. One is the probability that the button will fall back into the stomach rather than pass into the bowel. This has been known to occur in several cases. It can be explained both by the weight of the metal body tending to drag it back from its position in the anterior wall of the stomach into the cavity of the viscus, and from the narrowing of the jejunum due to the dragging of the colon preventing the button from passing into the gut. But when the button is placed in the posterior wall of the stomach behind the colon and in the jejunum behind the latter, where it does not kink, the contractions of the stomach and gravity both tend to carry it into the gut, which is at its greatest size and in no way displaced.

Again, two small details in the method of applying the button in the posterior operation which Barker has observed in his last two gastroenterostomies materially shorten the procedure and further minimize the chance of the button falling into the stomach. The first is Professor Carle's method of closing each viscus round the central tube of the button, which differs materially from that recommended by Dr. Murphy. The incision in each viscus was made only just large enough to get the button in. Then, instead of the usual purse-string suture round the edges of the opening to close it on the central tube, Professor Carle simply puts a stitch at each end of the slit by Lembert's method and so reduces it. This saves much time and is equally effectual. It also saves much handling and dragging of the parts.

The next point is a departure from von Hacker's procedure in his operation. He recommends that when the stomach has been reached through a slit made in the transverse mesocolon it should be secured there by stitches before being made to anastomose with the jejunum. The author believes that this stitching may be dispensed with altogether when the button is used. That this will save much time is obvious. In Barker's last case the operation had lasted seventeen minutes before this stage had been completed, the whole procedure lasting thirty-six

minutes. From what he has seen in the last two cases he has operated on he believes that all that is necessary is to make a small hole in the mesocolon and draw the posterior wall of the stomach through it to a sufficient extent to give room for the insertion of the metal button. When the latter has been placed in position it will prevent the stomach from slipping back through the slit in the mesocolon, and there will therefore be no reason for stitching the latter to the stomach. There might be some fear perhaps that the funnel of the stomach wall thus made might be strangulated by the edges of the hole in the mesocolon, did we not know that under similar conditions where the stomach is drawn out through small apertures, as in the most recent operations for gastrostomy, no strangulation takes place. In his first posterior gastroenterostomy, though the stomach wall was tightly grasped by the hole behind the button, no evil result followed, and the button was passed on the fourteenth day, the patient making a perfect recovery. In his last case of the posterior operation done with the same button he stitched the stomach to the mesocolon. But though the patient made an uneventful recovery and the button was passed on the twelfth day, he could see that he had lost at least ten minutes in putting in stitches in a very inaccessible part which might have been avoided. Everything which gets rid of the necessity of stitching within the abdomen appears to deserve very careful consideration as a means of saving time and the irritation of manipulation.

In conclusion, Barker says he was struck with the very small amount of general disturbance produced by the posterior operations as contrasted with a much larger number of anterior gastroenterostomies which he has done.

Barker then details two operations in which he employed the above method.

A SERIES OF CASES OF CHOLEDOCHOTOMY, INCLUDING THREE OF DUODENOCHOLEDOCHOTOMY.

MAYO ROBSON publishes a contribution on this subject in the *British Medical Journal* of November 5, 1898, in which he states that in operating on the gall-bladder and bile-ducts it is better to begin with an open mind, prepared for any of the various operations on the biliary passages, as it is as a rule quite impossible to say what will be required until the ducts have been explored by the fingers and the condition of the parts ascertained. Although Courvoisier states that gall-stones are found in the common duct in four per cent of all cases, "which possibly may be correct from a post-mortem point of view, or if all cases of cholelithiasis with only slight symptoms are taken into account," from the surgeon's point of view he thinks twenty per cent will not be too high an estimate, and this is easily accounted for by the fact that it is only in the cases producing serious symptoms where the opinion of the surgeon is sought. Seeing, then, that one case in every five of gall-stones may probably require some operation on the common duct, it is worth while considering what means are at our disposal.

In a few cases concretions may be manipulated backward into the cystic duct, and thence extracted by scoop or forceps, but it is seldom practicable on account of the contraction of the gall-bladder and cystic duct. The writer has adopted this method successfully on two occasions, but in both cases the cystic duct was also dilated and occupied by concretions.

Occasionally a small stone may be pressed into the duodenum, but this is exceptional and not generally to be recommended, as not infrequently it may be pushed into a dilated diverticulum of Vater, and so be missed, and the whole operation rendered futile.

Cholecystotomy, with subsequent treatment of the obstruction by solvent injections of olive oil or soap solution, is well worth bearing in mind on account of its simplicity and safety, together with the certainty of giving immediate relief with a modicum of risk, and putting the patient in better condition for subsequent treatment should such be necessary. It is of special value in patients too ill to bear a prolonged operation.

Cholelithotrity, or crushing the stones *in situ* where the concretions are sufficiently soft to yield to the pressure of the finger and thumb, is a method of treatment that Robson has followed on thirty occasions with marked success and without a death; it is especially applicable to cases where the common duct is difficult to reach, as in very stout subjects, or where it is desirable to avoid prolonging the operation. It is only available in the case of soft concretions, and may have to be supplemented by injecting the ducts with a solvent solution.

Needling concretions through the duct walls, recommended by certain operators, is not unattended by danger, as the damage

the walls of the ducts may lead to subsequent trouble. It is of no avail for soft stones, and uncertain in the case of hard concretions.

Cholecystenterostomy, or short-circuiting the obstruction, may be adopted where the patient is too ill to bear a prolonged operation, but it is by no means an ideal operation, as it leaves the obstruction untouched. Moreover, since in gall-stone obstruction the gall-bladder is usually contracted, in the greater number of cases, cholecystenterostomy is not available. The writer has performed the operation thirteen times altogether, but only seven times for gall-stones in the common duct. He lost one patient, who was at the time extremely ill with suppurative cholangioitis and deep jaundice of long duration.

Choledochenterostomy, or uniting the dilated cystic or common duct to the duodenum, in cases of largely dilated ducts with contraction of the gall-bladder, may be called for on rare occasions. The writer has twice done it, and both patients recovered.

Choledochostomy, or attaching the dilated duct to the surface and draining it, is so frequently associated with infection of the ducts in the liver that in nearly all the cases reported a fatal result has followed. The operation is rarely called for. The writer has only done it once, and as there was no infective cholangioitis the patient recovered and is now well.

Choledochotomy, or incising the duct and removing the calculi, is the operation *par excellence* for the treatment of gall-stones impacted in the ducts and which cannot be removed by any simple means.

Duodenocholedochotomy, or reaching the duct through the opened duodenum for stones impacted in the duodenal end of the duct, is a useful modification of the operation.

It will thus be seen that the surgeon has a great variety of operations to choose from; and he will act the wisest who, knowing all, is able on the spur of the moment to choose that peculiarly adapted to the case in hand.

The purpose of this paper is to record the author's experience of the operation of choledochotomy, which is the ideal operation for gall-stones impacted in the common duct, and the following remarks, as well as the list of cases, refer to this operation and its modification, duodenocholedochotomy.

An oblique incision through the parietes, along the lower border of the right lobe of the liver, gives more room than the vertical, where the common duct has to be operated on, but if the vertical incision be employed, it must be made larger than the one for simple cholecystotomy.

A sand-bag under the loin brings the duct several inches nearer the surface, and is therefore of great utility, and Robson always employs it. Two assistants are advantageous, one to retract the stomach and intestines on the left by means of a firm flat sponge and a wide retractor or his fingers, having his right hand free to sponge away the bile flowing from the incised duct, and another to retract the right side of the wound, the liver, and right costal margin. The operator then, after adhesions have been separated, grasps the common duct between his finger and thumb, and makes it prominent, when a vertical incision may be made over the stone, which can be gently squeezed out or removed by scoop or forceps.

It is of the utmost importance to clear the ducts or the operation will be futile, as shown by Kehr, who left concretions behind in 16.6 per cent of his cases, and by Riedel, Terrier, Fenger, Lauenstein, Küster, and others. Fenger has suggested a flexible metallic probe, which he says will give a click when it touches a stone, or which will produce a grating sensation when it passes one. This the writer knows by experience to be a fallacious guide, as after carefully probing, and even passing a scoop into both hepatic ducts and up and down the common duct without feeling a calculus, the author inserted his finger through the incision and felt a stone, which he was then able to remove, but had he trusted to a probe he would inevitably have left it. The duct is usually dilated sufficiently to permit digital exploration, which under such circumstances Robson always advises, reserving a bent probe, or better still, a slender bent scoop, for use where the duct is not capacious enough for the finger. The hepatic duct and its primary branches can be readily explored, and he has removed calculi from them through an incision in the common duct.

For applying sutures he either uses a rectangular cleft palate needle or a simple round intestinal needle, usually discarding any needle holder. The first sutures of catgut bring together the edges of the muscular and fibrous coats, the final sutures of silk the serous covering of the duct.

The author usually inserts a rubber tube and gauze drain, and leaves it in for twenty-four hours, or longer if needful, and generally at the same time drains the gall-bladder as in an ordinary cholecystotomy. Where the concretions are impacted in the duodenal

end of the duct, it is very much easier and more effectual to get at them through the incised duodenum, which he has done on three occasions, all the patients being now well.

The operation of removing gall-stones from the duodenal end of the common duct through an incision in the duct was first performed by McBurney, then by Pozzi and Kocher.

The operation is really less difficult than it would appear, and is much facilitated by placing a sand-bag under the lower dorsal spine. In each case he has grasped the termination of the common duct, including the duodenum, between the left finger and thumb, and has then cut through the anterior wall of the gut, exposing the interior of the posterior wall of the intestine, with the termination of the common duct running in it. In two cases the writer laid open the duct from the papilla, and in another cut directly on the stone through the posterior wall of the duodenum. Bile flows freely as soon as the obstruction is removed, and it must be mopped away as it flows by gauze pads, as it always contains pyogenic organisms, and is therefore infective. In none of his three cases has there been any trouble with bleeding, and no sutures have been placed in the incision in the posterior wall of the duodenum. The incision through which the duodenum has been opened—vertical in two cases and horizontal in one—is then sutured by a continuous catgut suture for the mucous membrane, and continuous silk suture for the peritoneum. No drainage is required.

As in all these cases of obstruction in the common duct jaundice has been present over a longer or shorter period varying from months to years, and as in long-continued jaundice there is a tendency to bleeding, Robson is in the habit of giving all his cases, for a few days before operation, chloride of calcium in half-drachm doses thrice daily, and of administering it in a nutrient enema in one-drachm doses thrice daily for twenty-four or forty-eight hours after operation. Since adopting this method of treatment he has had little or no trouble from hemorrhage, either at the time of operation or subsequently, and he confidently recommends it as a useful measure.

The prognosis of choledochotomy will improve with experience, though it will probably be more serious than simple cholecystotomy, not only on account of the various complications of jaundice and infective cholangioitis, but because of the greater technical difficulties of the operation itself.

In 1886 Kehr collected from all sources eighty-four cases, with a mortality of 37.8 per cent, though his own mortality was only 6.6 per cent. The total number of operations is so few, and performed by so many different operators, that the conclusions to be derived from statistics are at present misleading. Moreover, another factor has to be taken into consideration, in that in some of the simpler cases of gall-stones in the common duct cholelithotomy may be performed, whereas if these cases were all submitted to choledochotomy it would give the operation a much more favorable appearance. For instance, he has operated directly for gall-stones in the common duct in forty-nine cases, with three deaths, equal to a mortality of 6.1 per cent. These deaths occurred, one after cholecystenterostomy and two after choledochotomy, and in all three the jaundice had been long continued and deep and associated with infective or suppurative cholangioitis. Among the cholelithotrities there was no death, but among the seventeen choledochotomies there were two deaths, equal to a mortality of 11.7 per cent. As experience increases, Robson believes and hopes that the mortality will be reduced to five per cent, though even if the mortality remain higher it must be borne in mind that nearly every recovery is a life saved, for in the greater number of these cases of gall-stones in the common duct death after prolonged suffering is the usual termination.

CONTUSED WOUNDS OF THE ABDOMEN AND THEIR SURGICAL TREATMENT.

ROGERS (*Medical Record*, Oct. 8, 1898) states that the chief points to be considered in making a diagnosis of grave intra-abdominal lesions are the history of injury and its location, character of vulnerating force, rigidity or boardy condition of abdominal walls, obstipation, vomiting, pain, anxiety, and restlessness, the degree of shock and prostration. Pulse and temperature may be taken as reasonably safe guides in making a prognosis. Depending upon degree of shock, the pulse is at first rapid, irregular, and weak; temperature subnormal or normal. In favorable cases the pulse becomes stronger and regular, temperature normal or above normal. In unfavorable cases the pulse continues weak, intermittent, becoming hard and wiry; the temperature fails

to reach normal, or there rapidly supervenes a condition of hyperpyrexia.

It is better surgery to open the abdomen in doubtful cases and find no lesion than wait in a single instance until signs of septic peritonitis are present. An aseptic exploration will do no harm, while delay means death in ninety-six per cent of all cases of rupture of the intestine. A free incision should be made in the median line, and injured organs located as quickly as possible. This is oftentimes difficult. In locating the seat of injury the exact point at which violence was applied should be remembered. After injury of this character there is paralysis of the bowels, and in most cases rupture will be found immediately beneath the point where vulnerating force came in contact with the abdominal wall.

Of further importance is the action of the omentum, especially where considerable time has elapsed after receipt of injury; and in many cases of rupture or injury to viscera the omentum throws itself into the breach, and endeavors by adhering to the wounded organ to protect the general cavity from infection. A large portion of omentum will be found adherent at the point of rupture, and adds much to the ease of locating injury.

The prognosis is much more unfavorable if it is necessary to expose intestinal coils, which procedure adds much to the shock of operation, so much indeed that death almost invariably occurs when evisceration is necessary. It is doubtful if such procedure is ever necessary or justifiable.

THE BLOOD IN SEPTIC DISEASES OF THE ABDOMEN AND PELVIS.

HERBERT MAXON KING (*Medical Record*, Oct. 8, 1898) is unable to find any evidence which points to existence of characteristic blood conditions in sepsis arising from pelvic or abdominal causes, as distinct from sepsis from foci in other parts of body, and thinks none can be admitted. A felon may produce leucocytosis alike in kind and degree with that of septic peritonitis, since the cause of both is the same, while the diseased area involved makes little if any difference.

Blood examinations are of inestimable value as diagnostic aids in distinguishing between sepsis arising from pelvic and abdominal sources and certain diseases which in other clinical appearances simulate it closely.

Leucocytosis is always present in sepsis, except in severe infections which result fatally within a few hours; it is absent in intestinal obstruction (when not cancerous), cystitis, endometritis, tuberculosis (when uncomplicated), typhoid fever, and malaria.

Malignant disease is hardly to be confounded with sepsis; but if the question arises certain morbid changes in the red cells, principally of necrobiotic character, are almost always found in the former, while such changes are rarely, if ever, noted in sepsis, however protracted the case. The question may arise as between catarrhal and suppurative appendicitis, in which the blood-count, in the opinion of some observers, is of diagnostic value.

In a true inflammatory condition about the appendix, leucocytosis may be very slight or absent altogether. The study of blood also aids in the prognosis of septic disease, and as indication for operative interference surgeons are more and more availing themselves of its aid; and with establishment of clearer comprehension of the causes of leucocytosis and the origin and destiny of various elements, both normal and pathologic, in blood, a new light will be thrown upon the diseases under discussion, as upon many others which lie farther within the realm of speculation.

RESECTION OF THE INTESTINE FOR MALIGNANT GROWTH SUBSEQUENT TO OPERATION FOR INTESTINAL OBSTRUCTION.

MR. BATTLE (*Medical Press*, Oct. 5, 1898) operated on a woman aged twenty-eight, on whom he had previously operated for chronic obstruction of bowels. There had been intestinal obstruction of three months' duration, the cause of which was diagnosed as malignant stricture of the large intestine, probably situated in the descending colon or sigmoid flexure. Median incision was made to discover the exact seat of obstruction, and when this was located at the splenic flexure an artificial anus was made just above the opening in the abdominal wall, being well to the outer side of the linea semilunaris and a short distance below the ribs. A loop of intestine was brought out and retained in position by means of a pair of Spencer Wells' forceps, passed through the mesentery, after which a Pauls' tube was fastened in the upper part of coil. Convalescence was slightly retarded by localized cellulitis, but a month after operation all traces of obstruction had disappeared, and the patient had improved greatly in health.

The patient having been placed under ether, and the opening into the bowel having been closed with a plug of cyanide gauze, an incision was made along the linea semilunaris for four inches below the artificial anus. A piece of gauze was next passed into the abdominal cavity to the outer side of the colon. The growth, which was well localized, could be brought to the surface; there did not appear to be any glandular enlargement present. The bowel below the growth was clamped by means of a piece of rubber tubing passed through the mesentery and held with artery forceps; the bowel was cut across and the mesentery behind the growth cut near the gut, the vessels being caught as they showed themselves. The bowel was secured in a similar way above. The artificial anus was separated from its attachments to the abdominal wall, the main incision being extended into it from below; the piece of gauze was removed from the upper end, the bowel was washed out, and a section was made above. The growth and bowel from two inches below the disease to above the artificial anus were then removed. During this procedure the abdominal cavity had been shut off by means of flat sponges. Lateral anastomosis was then effected in the following manner: The ends of the gut were turned in and closed by continuous Lembert sutures; the upper portion was placed to the outer side of the lower one so that when sutured it would lie above and external to the latter. A row of interrupted Lembert sutures was placed about half an inch behind the line selected for opening; the opening was then made about two and a half inches long in both portions of bowel, and a continuous stitch, including all the coats, was passed to unite the opposed edges. Interrupted Lembert sutures were then inserted in an outer row, surface of peritoneum being thus closely apposed for a distance of half an inch around the main opening. The parts were carefully cleansed, gauze and sponges being removed, and a portion of omentum was placed over the band which had thus been united. The abdominal wound was then closed in two layers, the peritoneal and subperitoneal tissue with fascia being first shut off. The ordinary dressings were applied.

Mr. Battle said the case illustrated the importance of doing resection of the large intestine in two stages, in cases of disease which had produced obstruction. It was never advisable to perform resection on a patient who was suffering from obstruction, when neither the general nor the local condition was favorable. In the case under consideration, at the first operation, the patient was exhausted with vomiting and want of food, whilst the distention of the abdomen prevented the mesentery under the growth from being brought out. He had selected lateral anastomosis in preference to end-to-end anastomosis, for he was of opinion that lateral anastomosis was much the safer method of operating. In the same way he considered that the fewer mechanical contrivances in the shape of clamps that were used the better for the bowel; also it was preferable to avoid the use of bobbins and buttons when possible.

The patient has progressed favorably with the exception of a tendency to bronchitis, the effect of the prolonged etherization. The growth was probably cylindrical carcinoma, which had almost completely occluded the bowel.

FOREIGN BODIES IN THE EAR.

HUMMEL (*Münchener Med. Woch; Medical Record*, Oct. 8, 1898) makes the following deductions: (1) The relation of the normal ear canal to inanimate foreign bodies is entirely without reaction; that is, a foreign body in the ear does not, *per se*, endanger the integrity of the ear. (2) Hasty endeavor at removal is not only unnecessary, but can become very injurious. (3) In all cases not previously interfered with (with few exceptions) foreign substances can be removed from the ear by syringing. (4) General practitioners should never employ anything but the syringe in endeavoring to remove foreign bodies from the external auditory canal. (5) Instrumental removal of foreign bodies from the ear should be effected only by one fully able to examine the ear with the otoscope and acquainted with every operative manipulation in this region.

NOTES ON THE TECHNIQUE OF SKIN GRAFTING BY THIERSCH'S METHOD.

ARTHUR E. BAKER, F.R.C.S. (*Practitioner*, October, 1898), says that the instruments required are few: a pair of scissors and forceps and a broad flat razor are all that are necessary. The latter is best sterilized by being immersed in spirit, which does not spoil a fine cutting edge as does boiling. Later and during operation it should be dipped in a

mixture of glycerin 25 per cent, spirit 25 per cent, boiled distilled water 50 per cent. This will lubricate the blade and enable thin grafts of epidermis to slide or float out on the steel instead of gathering into shapeless wisps.

Skin from which grafts are to be taken, usually the front of the thigh, should be very carefully cleansed on several occasions. A day or two before operation this process should be begun by a warm bath of the whole body. After this the thigh is washed briskly with methylated spirit and wrapped for a couple of hours in a towel wet with 1-in-20 carbolic lotion and covered with oiled silk. Next day the same process is repeated, during which there will probably be some exfoliation of epidermis, due to the irritation of the carbolic acid. This is very salutary, as it carries off superficial layers which contain the largest number of microbes. The skin should then have a rest until a couple of hours before operation, when a carbolized towel is again applied and left on until the patient is on the operating table.

Supposing rodent ulcer of the face is to be removed and grafted; the skin of the affected side is treated as above, and finally washed with spirit. The growth is then removed freely, bleeding vessels being closed by pressure forceps. The cavity left is filled with a sterile sponge or sterile gauze until all oozing has ceased. In the meantime the thigh is washed thoroughly with spirit. When the wound has ceased oozing, the razor, wet as above in glycerin mixture, is used to shave off from the thigh the thinnest possible graft. The latter should consist only of epidermis down to the papillary layer. If it contains any of the latter it will curl up and become unmanageable. The larger the graft is, compatible with its thinness, the better; as a rule it will amount to about an inch square. As it now lies on the blade of the razor it may be spread out with the tip of the finger or a forceps. A sterile sponge is now taken and pressed against the graft, and the razor is drawn away, leaving the graft on the sponge. Here it may require to be spread out a little further. The wound is now uncovered, and if oozing has ceased the graft, sticking to the sponge, is pressed down upon it, and it will adhere, the sponge coming away after absorbing the moisture pressed out from under graft. Then another graft is placed over any raw surface left uncovered, and slightly overlapping the first, and so on until the whole wound and its borders are covered. A large pad of sterile gauze is laid gently over the whole wound after each graft, and gently pressed upon by an assistant, while the graft is being prepared; it is then lifted gently by one end until the latter is in place, when it is again laid down. Each time it removes all moisture.

If a granulating surface is to be covered in, the surface of the healing ulcer is first scraped with a blunt-edged spoon until the superficial layers of cells have been removed. The bleeding is next arrested carefully by pressure, as above. The grafts are then cut and applied as described. It is a mistake to scrape too deeply through an ulcer, as the tissue then left on its base is unsuited for grafting, consisting mostly of fibrous tissue.

In both instances the dressing should be a pad of sterile gauze or salicylic wool pressed evenly into every corner of the wound upon the grafts. This serves the double purpose of squeezing out any moisture from under grafts and bringing all the surface of the latter into close contact with tissues underneath. This pad is covered with more of the same material, so as to give good elastic pressure over whole surface. It should be left untouched for six or seven days, and should then be soaked in lotio boracis until quite soft before being loosened.

Of course, such a dry dressing pressed directly upon grafts, and more or less infiltrated with blood, will form a hard cake at the end of a week or so, firmly adherent to the grafts. There might be some fear then that they would pull off the latter when removed. But, on the other hand, if deeper layers of the graft have not firmly united to the wound by the end of a week they will not unite at all, and had better be removed. What is usually seen when the dressing is first removed is that the superficial or dead layers of epidermis have stuck to the dressing and have come away with it, but leaving deeper and essential cells behind.

In many cases, however, when the first dressing is taken off at the end of a week, the thin bluish-white area of cicatrization is seen to be well advanced. In those cases where the base of the defect to be covered lies at a much lower level than the general surface of the skin, as in a wound left by the removal of a rodent ulcer, grafts must be made to cover the vertical edges closely before resting on the horizontal base. When first healed the appearance is remarkable, but in the course of time the base of the defect rises, and the edges thin down until the new cicatrix is almost on a level with the sur-

rounding skin. The wound made on the thigh during the removal of the grafts requires only a boracic lint dressing to be left on for a week. So complete is the *restitutio ad integrum* that in a month or two it is almost impossible to say from what surface the grafts had been removed.

ONE HUNDRED CÆSARIAN SECTIONS.

LEOPOLD and HAAKE (*Quarterly Medical Journal*, October, 1898) have published recently in the *Archiv für Gynækologie*, Band lvi, Heft 1, an article upon 100 Cæsarian sections (see also *Ann. de Gynec. et d'Obst.*, June, 1898). As Professor Leopold has performed more Cæsarian sections than any other man, alive or dead, a special value attaches to his experience and conclusions. The series extends over a period of rather more than fourteen years, and all except the first were performed at the Königliche Frauenklinik at Dresden. Seventy-one were "conservative," 29 were mutilative—*i.e.*, Porro's operation. The 99 operations at Dresden corresponded with 22,358 labors, or one in 2258. The first 50 cover fifteen years, the second nine years. This increased frequency is due to the greater confidence and readiness in resorting to operation which perfected antisepsis has brought about.

The indications for operation are either "absolute" or "relative," relative indication referring of course to cases where operation is performed as an alternative to possible embryotomy. But it must be emphatically laid down that relative indications must only lead to conservative operation where the condition of the most rigorous antisepsis can be realized. In contracted pelvis the relative indication recognized at the Dresden clinic is a true conjugate of less than 6 centimeters (2.36 inches), but such figures are only an approximate guide. Clinically the indication may be more absolute with a true conjugate of 6.5 centimeters and a large child, than with a conjugate of 5.5 and a small child. The limit for version followed by immediate extraction with the employment of Walcher's position is a true conjugate of 7 centimeters (2.73 inches) in flat, rickety pelvis, and 7½ centimeters (2.96 inches) in flat, generally contracted, pelvis.

In considering the indications for Porro as opposed to conservative Cæsarian section, the authors say that Porro should be done when the following conditions are not rigorously fulfilled: (1) The parturient woman must have energetic uterine contractions; (2) the constitution must not have been weakened by serious illness; (3) it must be certain that the patient is not already infected. It is also desirable that there should be no marked elevation of temperature or acceleration of pulse. It is very desirable that the membranes should not be ruptured, or ruptured but very recently before operation. It is essential that there should have been very little examination, and none by hands of doubtful asepsis. Above all else, there must be no suspicion of gonorrhea, acute or latent. The authors advise for this reason a bacteriological examination of the secretions of the vagina and cervix. If gonococcus be found, Porro may be safer than perforation. Nephritis is another contraindication.

Fifty-five of the 100 cases were multiparæ. These had had 108 previous confinements, namely, 9 miscarriages, 7 premature children (2 living, 5 dead), 15 spontaneous deliveries at term (10 living children and 5 dead); instrumental and operative deliveries, 77. But 14 of these confinements were Cæsarian sections; the remaining 94 had yielded 23 living children, a fetal mortality of 83.6 per cent. In 13 of the 100 operations, section was performed more than once on the same patient, viz., on one four times, on another three times, on eleven patients twice. As regards mode of operating in conservative Cæsarian section, the elastic ligature was used in most of the cases. If but moderately tightened and not left too long *in situ*, there is no inconvenience from its use. It is especially adapted for operating when short of skilled assistance. Silk is used for sutures. Twelve to fifteen deep sutures are inserted one centimeter from the peritoneal edge; they traverse the muscle in a curve and emerge at the inner edge of the wound. Between these are thirteen to seventeen sutures which pass through peritoneum and superficial muscle only. Ergotin is injected at the commencement of anesthesia, and again just before operation.

RESULTS.

Operation.		Deaths.	Percentage.
Conservative	71	7	9.8
Porro	29	3	10.3
	100	10	10

The authors say that three of the conservative operations and two of the Porro's owed their death to causes not strictly incidental to the operation, and that this would reduce the total mortality to 5.2 per cent. We read-

ily recognize the fact that in such a long series of cases some would be operated on under very disadvantageous conditions. As to the fetal mortality, in all the seventy-one conservative operations the child was born alive, but five died before the mother left the hospital. In the Porro series, one was born before operation, three died before operation, two died during the labor, and two after birth, from intestinal catarrh.

Sequelæ.—In 51 cases, no fever; in 13, slight fever; in 13, complication of septic nature.

THE SURGICAL TREATMENT OF GOITRE.

REVERDIN (*La France Méd. et Paris Méd.*, Oct. 14, 1898), after describing briefly the various operations practiced for the relief of the symptoms dependent on goitre, analyzes over six thousand cases, and deduces from this that the mortality incident to operation is less than three per cent. Total extirpation shows a mortality of 18.9 per cent, while intraglandular enucleation shows but .78 per cent. The latter operation should, then, be given the preference.

As to the accidents and complications attendant on the operation, lesions of the veins are dangerous because of the possibility of air embolism. The author states that he knows of nine fatalities due to this cause. Each vein should be divided between forceps or ligatures.

The primary hemorrhage in the case of glandular tumors may be so free that enucleation may have to be abandoned in favor of excision. By proceeding slowly and deliberately and keeping to the capsule of the new growth the bleeding rarely gets beyond control.

The recurrent laryngeal nerve may be wounded in excision. Kocher states that such an accident occurred in seven per cent of his cases; enucleation greatly lessens the danger of this complication, which is best avoided by careful isolation of the inferior thyroid artery before it is tied. The superior laryngeal, the hypoglossal, and the sympathetic nerves, the trachea, larynx, esophagus, and pleura have been wounded exceptionally.

For the purpose of lessening the danger of infection the wound should be closed. Even when it runs a sterile course there is commonly a distinct fever, named by Poncet thyroid fever, supposed to be due to absorption of the thyroid secretions.

Pneumonia is a common sequel of operation; its cause is obscure.

When the trachea has been greatly affected by pressure atrophy, on the removal of the surrounding tissues it may collapse on inspiration. This may be remedied by intubation through the larynx, or by holding the trachea open by stitches.

Both tetany and myxedema develop exceptionally after operations. Psychoses such as melancholia, dementia, mania, epilepsy, hysteria, are observed only after total extirpation.

As to the results of operation, a transverse incision neatly sewed leaves a scarcely perceptible scar, the functional troubles are usually cured at once, and recurrences, at least those requiring a second operation, are rare.

When the disease is distinctly limited to one lobe the author prefers unilateral extirpation.

INTERSCAPULO-THORACIC AMPUTATION FOR THE REMOVAL OF MALIGNANT TUMORS.

BERGER (*La France Méd. et Paris Méd.*, Oct. 14, 1898) reports the case of a man aged twenty-eight who exhibited a tumor, malignant in appearance, three months old, the size of a turkey's egg, which starting from the neck of the humerus had invaded the deltoid and the scapular muscles. Berger cut through the clavicle in its mid portion, ligated the axillary artery and vein, then with very little hemorrhage amputated the upper extremity, including the scapula and its attached muscles, the deltoid, and a mass of enlarged glands in the axilla.

The infiltration was myxomatous, having originated from the medullary cavity of the humerus.

Eighteen months after operation there was no recurrence.

Berger reports the after-history of a second case, on whom he operated fifteen years ago because of an enormous enchondroma. This man is at present an active country postman.

As a result of statistical study Berger states that forty-six amputations of the arm, including the scapula, practiced for the removal of tumor of the humerus, were followed by operative death in but two instances. An infant two years old died, probably of shock. The other fatality occurred at the hands of Bergmann; the malignant infiltration required for its complete ablation, in addition to the removal of the arm and shoulder, a partial resection of the sternum and of the

first rib. Moreover, Bergmann ligated the superior vena cava and tamponed the mediastinum.

Thirty-one of the cases tabulated remained under observation; in fourteen of these recurrence or metastasis was noted, with one exception, in from four to six months. In seventeen there has been no recurrence or metastasis. Ten of these cases have been under observation for more than a year. Since the osteosarcomata are always precocious in their recurrence, Berger holds that these ten cases can be regarded as permanently cured.

This establishes the interscapulo-thoracic amputation as the one of choice in the treatment of malignant tumors of the upper segment of the humerus, since the mortality incident to it is not greater than that which follows scapulo-humeral disarticulation, and since it gives thirty-three per cent of radical cures as contrasted to the almost certain failure of the latter operation.

AN ADDRESS ON SOME RUDIMENTS OF INTESTINAL SURGERY.

TREVES (*British Medical Journal*, Nov. 5, 1898), the first English authority on abdominal surgery, delivered before the Midland Medical Society an address notable for its humor, valuable because of its foundation upon the logical deductions of a wide personal experience. A partial abstract follows:

In a fatal case of acute intestinal obstruction it can hardly be said that death is due directly to the obstruction. The complete closure of the bowels for a period of say seven days is not in itself an accident to cause death. Moreover, the clinical manifestations in a case of acute intestinal occlusion are in a large part due to conditions other than those directly arising from the obstruction in the lumen of the gut. Finally, there is a period in the progress of such a case as we are considering in which the relief of the obstruction will not save the patient's life. Those who like to speak in paradox are almost justified in saying that in fatal cases of intestinal obstruction the patients do not die of intestinal obstruction. The interest of this matter extends, however, beyond a mere play on words, and it can be shown that an undue prominence given to the mere fact of the obstruction is apt to distort both the clinical conception of the disease and the proper view of its treatment.

In the course of a case of acute intestinal obstruction it is possible to recognize three stages. In the first stage—or that of the onset of the trouble—the symptoms are those of intense abdominal pain, collapse, and vomiting. We will assume that the lesion is represented by the snaring of a loop of ileum by a peritoneal band. The symptoms in question, however, are in no way due to the fact that the bowel has become abruptly blocked. They depend upon the circumstances that a sudden and intense impression has been made upon exquisitely sensitive abdominal nerves. The symptoms must be classed as purely nervous. The vomiting, for example, is reflex, and has no connection whatever with the accidental fact that the bowel has become occluded.

The symptoms which mark the onset of a case of acute intestinal obstruction have little or no diagnostic character. They are symptoms which attend all sudden and intense painful impressions upon important visceral nerves, and have been collectively described under the title of "peritonism." They are symptoms common to a series of intra-abdominal accidents. In the absence of any determining feature in the patient's history these clinical phenomena may equally well mark the passage of a gall-stone, torsion of an ovarian tumor, the perforation of an ulcer of the stomach, or the rupture of a pericæcal abscess. They are nervous symptoms produced by a common nerve lesion, and their interpretation can proceed no further than this—there has been an abrupt and intense impression made upon some part of the abdominal nerve plexuses. We have all seen cases in which perforation of the stomach or appendix has been mistaken for intestinal obstruction, and *vice versa*.

In what may be termed the second stage in a case of acute obstruction the symptoms attain more individuality, and depend without doubt mainly upon the mechanical obstacle in the bowel. The pain is to a large extent due to disordered and futile peristaltic movements, the absolute constipation depends upon the blocking of the intestine, and the persistent vomiting is in the main due to the same cause. The character of the vomit, however, shows that another factor is being introduced into the circumstances of the case in the form of rapid decomposition of the intestinal contents. This depends, of course, upon the unnatural retention of those contents in the bowels, and probably in a still larger degree upon vascular and other changes

in the intestinal wall. The vomited matter becomes offensive, and acquires an odor which for want of a standard of offensiveness may be called stercoraceous. Feculent or fecal vomiting—by which I assume is meant the ejection of feces—I have not met with in acute obstruction. Finally, there is an increasing distention of the abdomen. This is largely due to mere accumulation, to mere inability of the contents to escape. The meteorism in intestinal obstruction is, however, in great part due to vascular changes in the bowel wall. This fact has been fully demonstrated by experiments upon animals and by pathological experiments in man. It is well illustrated by a distention of the twisted loop in volvulus of the sigmoid flexure. The most severe case indeed of meteorism of the small intestine which has come under Treves' notice was associated with no mechanical obstruction in the gut, but was due to thrombosis of the superior mesenteric vein.

Last of all, in the third or final stage of acute obstruction, the symptoms have little to do with the actual obstruction as such. They are the symptoms of poisoning, and the patient who dies unrelieved dies poisoned. The septic matter which leads to his death is derived from his own intestine. It is the rapid onset of septicemia which makes the operative treatment of acute intestinal obstruction so futile in the majority of cases. In many an instance an accurate diagnosis has been made, an early incision has been carried out, and the cause of the obstruction has been readily discovered and removed. The abdomen is closed and the patient dies. Treves quotes one very painful example of this sequence of events. The patient was a gentleman of middle age; the operation was performed forty-eight hours after the onset of the attack. A strangulating band presented itself the moment the abdomen was opened. It was divided without difficulty and the parietal wound was closed. A more favorable case could hardly be conceived, yet the patient died with septic manifestations, and necropsy revealed no breach in the bowel and no gross peritonitis.

Those who wish to advance the therapeutics of intestinal obstruction must first of all grapple with this terrible element of intestinal septicemia. Surgery wants a Lister who will teach us how to overcome the process of decomposition in the bowel. The lesion to the bowel need be by no means grave; the operation of dividing an easily discovered band cannot be considered to be severe, and yet the patient dies. In a large proportion of these cases there is infection of the peritoneum to a degree which may lead to death, and yet produce few of the naked-eye manifestations of peritonitis; but the infection starts from the bowel, and in the bowel the process of antisepsis must start. The intestine has some power of acquiring immunity against this septicemia, as is made evident in cases of chronic obstruction of the bowel, when one meets with a slighter grade of this self-poisoning, from which the patient makes an easy recovery. Such milder forms are often seen in instances of fecal accumulation. As soon as the fecal mass has been removed there is often some fever of a mild degree and collapse and possible nausea or even vomiting. As a rule such manifestations vanish in a day or so. The stomach seems not to lend itself to this form of blood poisoning, and extensive accumulations may take place in that organ and lead to no septic effects. The colon, too, would appear to possess a natural immunity up to a certain point, but in the lesser bowel the process is uncontrolled, desperate, rapid, and almost hopeless.

From a practical point of view the treatment of acute intestinal obstruction appears to demand two things of the surgeon: (1) An early operation, and (2) the evacuation of the bowel after the strangulation has been relieved. The first of these two measures will be allowed by all to be commendable. The opening of the abdomen in these particular cases is not a trifling measure, but it is infinitely trifling when compared to the mere standing by with folded hands to await the remote possibility of spontaneous cure. The so-called medical treatment of these cases is a relic of the Dark Ages, and must rank with the "faith-cure" and the medical treatment of a dislocated hip.

With regard to the second proposition, it appears in a certain sense that the real danger to life lies rather with the poisonous material in the intestine than with the actual obstructing cause beyond its walls. The patient is dying not because his bowel is occluded, but because the distended gut above the obstruction is producing a poison which is sapping his strength. It has, unfortunately, been too many times demonstrated that the successful relief of the obstruction will often fail to save life, and, indeed, it is of more moment to relieve the patient of the trouble within his bowel than of that which is with-

out it. In all cases of acute intestinal obstruction which have been dealt with in recent years Treves has not considered the operation complete until he had, as a matter of routine, emptied the bowel. This is conveniently done by bringing the most distended coil to the parietal incision, and evacuating it by means of a small glass tube, which is inserted into the gut, and secured to the bowel wall by a single encircling thread. He has had no difficulty in closing the small artificial anus by a subsequent operation, carried out some weeks after the original proceeding. This measure has had the effect of reducing the mortality of this formidable procedure to one-half of its original rate.

To appreciate and deal with septic processes within the bowel must be one of the very first rudiments of intestinal surgery. The teachings of Lister have led to a revolution in the surgeon's art which is still a matter of amazement. Antiseptic surgery, however, as we employ the term, concerns itself mainly with the prevention of forms of infection in which the septic germ is introduced in the body from without. Antiseptic surgery has practically left untouched those forms of infection in which the septic element is in a certain sense introduced into the system from within.

With regard to that infection the remarkable fact is this, that the bacillus which appears to be most concerned in the production of this septicemia is not a bacillus introduced accidentally into the bowel from without, but a bacillus which exists normally in the bowel in a condition of health. It is probable that the microorganisms described under this name do not belong to one particular definite species, and that the term bacterium coli commune may be taken as a collective name for a group of bacteria which will probably be in time resolved into several different species. Anyhow, this widely diffused bacillus exists normally in the intestine of healthy man, and appears in the bowel a few hours after birth. It is found in all parts of the intestinal canal and at all periods of life. It is scarcely reasonable to assume that this invariable occupant of the healthy intestine is a mere noxious or useless parasite. It is more than probable that it is concerned in some direct or indirect way with the process of digestion. It would be indeed interesting to know how the phenomena of digestion would proceed in a sterile bowel.

The bacterium coli may remain in a perfectly harmless saprophyte; on the other hand, it may rapidly alter its character, and become possessed of intense pathogenic activity. It has been shown that in the majority of cases of perityphlitis the local inflammation is due to the bacterium coli commune which has escaped from the lumen of a diseased vermiform appendix. That extensive variety of peritonitis which takes its origin from the intestine, as illustrated by the peritoneal infection attending strangulation of the bowel, would appear to be, in nearly every instance, due to microorganisms now under discussion.

The virulence of the bacillus coli is subject to quite extraordinary variability. An exaltation of its virulence may be due to an association with other organisms, pathogenic or non-pathogenic; but in most instances its morbid activity is excited by some change in the condition of the bowel itself. Diarrhea, enteritis, cholera, and typhoid fever are all capable of rendering this organism virulent, and the same may be said of the conditions attending fecal accumulation.

Examinations upon animals make it probable that in man a moderate infection of the peritoneum with the colon bacillus from a healthy bowel would be harmless, while an infection by equal dose from a bowel rendered in any way unhealthy would induce peritonitis. Surgical experience would certainly support the suggestion. Klecki has shown that the bacterium coli from the ileum is the most virulent, that from the jejunum ranks next, while that from the colon is the least potent for harm. There is no doubt that so long as the bowel wall remains intact, especially as regards the epithelium, little or no opportunity is afforded the bacterium to escape from the gut. Artificial compression of a loop of bowel by an india-rubber ring (with or without ligature of the mesenteric vessels) will cause acute general peritonitis in dogs, as Klecki has demonstrated. The animals die in twenty-four to forty-eight hours. The epithelium rapidly desquamates, the vessels dilate, and there is an abundant infiltration of the whole wall of the ligatured knuckle. The virulence of the colon bacillus within the loop is infinitely greater than that of the same microorganisms from an undisturbed part of the same intestine.

These facts suggest by the way that the handling of the bowel during an operation should be of the gentlest, and that the evacuation of an obstructed loop is very desirable. On the other hand, there is no

doubt that the normal peritoneum has considerable power of resisting an invasion of this particular bacterium. This protective power, however, would appear to be very soon lost if the delicate surface of the serous membrane be damaged. There is no doubt that the washing and scrubbing and rubbing to which the peritoneum was exposed while surgeons were under the influence of that fatal expression "the toilet of the peritoneum" led to many deaths.

The peritoneum has remarkable powers of protecting itself if only the surgeon will permit it to exercise them. Save in a few exceptional instances, the serous membrane is better able to deal with a moderate effusion than are the overready sponge and the futile and often fatal drainage tube.

Treves has noticed, moreover, that the peritoneum which has been subjected to repeated infections becomes in time almost immune. The operations which can be carried out with success in patients who have repeated attacks of peritoneal inflammation are often almost beyond credence.

The average colotomy gives the patient but a minimun amount of trouble. In a large proportion of cases it is possible to secure a good action of the bowels every forty-eight hours, the artificial opening causing the patient but little or no inconvenience in the interval. If there be a degree of colitis present at the time of the operation, it is true that the new opening may be the seat of a not inconsiderable distress. But in the average case the administration of a dose of mistura alba very early in the morning on alternate days will secure an ample evacuation of the bowel followed by a period of immunity from disturbance. This much-to-be-desired result is rendered possible by very careful feeding, and above all by the utmost attention to the wound. There is no doubt that the troubles attending colotomy, as performed some years ago, were in large measure due to neglect of the wound. A pad of septic tow and a dab of vaselin were placed over the bowel, and the requirements of surgery were considered to have been thereby fully met. The gross neglect of the part was excused on the ground that the operation area was already septic. As a matter of fact, few complicated wounds respond more readily to careful treatment and assiduous attention than does the colotomy incision, and the benefit to the patient from such care can hardly be overestimated.

It is satisfactory, however, to note that the necessity for colotomy is rendered less frequent by the numerous opportunities for performing resection of the bowel, especially for cancer, and by the excellent results which have followed upon the operation of lateral anastomosis or short-circuiting. The incision of a portion of the colon for malignant disease must rank as a most satisfactory procedure. The best results are obtained when the growth is situated in the sigmoid flexure, or in such other part of the large intestine as may be provided with a free mesocolon. The least satisfactory cases are those in which the growth has involved a part of the bowel which is unassociated with a mesocolon and has a portion of its surface denuded of peritoneum. It is essential for success that the growth should be dealt with early, and that the excision of the gut and of the associated mescolon should be as liberal as possible. Indeed, it appears that among all operations for the treatment of cancer by excision the removal of a portion of the sigmoid flexure for early epithelioma must rank as one of the most successful.

In those instances in which the malignant growth, by reason of its position or extent, cannot be removed, there are, happily, a fair proportion of cases in which a lateral anastomosis can be carried out, and the patient thus spared the inconvenience of a colotomy. Experience has shown that a considerable portion of the intestine can be thrown out of the circuit without apparent inconvenience to the patient.

Many of the intestinal sutures are hopelessly bad, because the thread passes through all the coats of the bowel and acts as a vehicle for conveying septic germs from the lumen of the gut to the peritoneum. Others are hopelessly complex, and of interest only to those who find delight in ingenious puzzles. Not a few are the subject of periodical invention, whereby the forgotten Jones-Robinson suture of 1806 becomes the quite original Smith-Johnson suture of 1898. The best stitch is still the ancient one, which includes a fine continuous suture of the mucous membrane, and points of Lembert suture, which involve the outer coats of the viscus. Certainly in the stomach no form of stitching is more convenient than this. Moreover, among the horde of intestinal needles, the best is the milliner's needle which comes from the draper's shop.

Of the methods of uniting a divided bowel, either after excision or in the performance of a lateral anastomosis, the best theoretically is,

without doubt, the method of simple suturing. In practice, however, this can seldom be advantageously employed. The simple suture involves a great expenditure of time; the differences in the segment of gut above the stricture and that below it render straightforward suturing almost impracticable, and the bowel at the suture line is very apt to kink. To cope with these difficulties there has arisen that remarkable host of plates, disks, tubes, cylinders, buttons, and bobbins which has so disturbed the peace of the surgeon who hungers after the "last new thing." Not a few of these appliances alternate between oblivion and rediscovery, to the great hindrance of progress. For example, in 1882 Treves described a method of suturing the bowel over a collapsible india-rubber bag which was sausage-shaped, and was introduced into the ends of the gut to be united. It could be blown out into the form of a firm cushion, and, before the last stitches were introduced, could be emptied and withdrawn. A little experience showed him that his bag was useless, and it was promptly discarded. Now after a period of sixteen years an American surgeon, Dr. W. S. Halsted, rediscovers his useless bag, and reproduces it with singular exactness. Halsted believes his old-new procedure to be "better than any method hitherto devised"—and so we step back sixteen years. Dr. Halsted also, by the way, expresses his conviction "that there should be a law compelling all surgeons to practice on animals the operation for circular suture of the intestine and for intestinal anastomosis." It is hoped this view will not commend itself to the legislators of this country. Many years ago Treves carried out on the Continent sundry operations upon the intestine of dogs, but such are the differences between the human and the canine bowel that when he came to operate upon a man he found he was so much hampered by his new experience that he had everything to unlearn, and that his experiments had done little but unfit him to deal with the human intestine.

Of the various appliances in vogue for the uniting of divided bowel the best is Murphy's button. It is very far from being a perfect instrument, but it compares at least very favorably with the other forms of apparatus which compete with it.

Treves has employed Murphy's button in considerably over fifty cases, with results which are certainly satisfactory. The button requires no elaborate preparation, and it is always ready, its introduction is exceedingly simple, and is effected in a few minutes. The two parts of the instrument may certainly jam, but that accident is the result of careless handling. It does not induce a gangrene extending beyond the limit of the button. The two definite and undoubted objections to the button are these: it may be indefinitely retained, and its separation may be followed by contraction of the artificial opening. These two undesirable results are often in close relation to one another as cause and effect.

In the cases of cholecystenterostomy in which he has used the button, Treves has never known it to be retained; and the opening made has not undergone inconvenient contraction. In cases in which the button has been employed in the colon only, though the button was not retained, exceptionally there has been contraction of the new passage.

In examples of gastroenterostomy performed by means of this apparatus, retention of the button for considerable periods, or its absolute failure to appear at all, seems to be the rule rather than the exception.

The explanation of these cases of contraction, whether in the stomach or in the colon, is not far to seek. The button effects an opening between the viscera by means of pressure gangrene. After-contraction has only occurred in cases in which the upper viscus was much dilated at the time of the operation. It is needless to say that in gastroenterostomy for pyloric obstruction a dilated stomach is met with, and in intestinal anastomosis for stricture the upper segment of the gut is apt to be enormously distended. After the operation the dilated organ contracts, and consequently the newly made hole contracts. A hole in a dilated stomach made by pressure gangrene, and the size of a half-crown, may readily become an aperture the size of a four-penny piece when the distended viscus had gradually contracted. It is therefore very desirable to have the viscera to be dealt with as empty as possible before the button is introduced. This end is very difficult to secure even to a partial degree. The stomach, for example, in old pyloric obstruction, even when kept washed out for many days, is slow to contract; and if at the time of the operation the viscus be still much dilated, retention of the button and possible inconvenient contraction of the new opening may be regarded as possible.

This association between previous disten-

tion of a viscus and the subsequent contraction of the aperture made in it is, of course, by no means limited to Murphy's button. It applies to nearly every method in vogue for carrying out the operations now under discussion.

Still, in spite of many drawbacks and failures, intestinal surgery has made within the last few years decided and substantial success, but it will fall short of perfection until antiseptic surgery, which so far has penetrated only to the serous covering of the gut, has reached the mysterious and septic lumen which lies within the bowel wall.

THE TREATMENT OF TETANUS BY MEANS OF INTRACEREBRAL INJECTIONS OF ANTITOXIN.

George G. Rambaud (*New York Medical Journal*, Dec. 17, 1898) was led to try this method of treating tetanus by a contribution from Roux and Borrel, who concluded from a number of experiments that the "tetanic antitoxin, when injected into animals, remains in the blood, whereas the toxin is extracted from it and fixed by the nerve cells. The antidote does not come in contact with the poison, and the two substances, though so near each other, fail to meet. The serum is efficacious against the toxin which is placed under the skin because the greater part of it enters the blood, but it proved powerless against the poison that has already reached the nervous elements."

This is why in man as well as in animals the subcutaneous and intravenous injections so often fail. When they are resorted to, the nervous system has already fixed a smaller or greater quantity of toxin, and while the antitoxin thus administered neutralizes the toxin circulating in the blood and limits the poisoning, it does not reach that which is attached to the spinal or cerebral cells. When the intoxication has advanced too far, the toxin diffuses from one nerve cell to the next, protected from the antidote, and the disease runs its course.

So Roux and Borrel concluded that, in order to bring about a cure in a case of tetanus, the antitoxin must be placed where the toxin is acting in order to preserve the vital portions of the cord before they are affected. Accordingly they treated with intracerebral injections of antitoxin forty-five tetanized guinea-pigs; thirty-five of them recovered. Seventeen others were treated with subcutaneous injections; only two of them survived. Seventeen check guinea-pigs, not treated with the serum, died.

Theory and experimentation agreed. Antitoxin introduced into the brain protects the upper part of the cord when the lower portion is already affected by the poison; but it does not cure the lesions that have already taken place; the contractions existing at the time of intervention persist for some time; and Roux and Borrel state that if the medulla is already poisoned (shown by impaired deglutition, and possibly respiratory disturbances) death cannot be prevented.

The feasibility of the procedure was demonstrated soon after Roux and Borrel had given out the results of their researches. The first case was successfully treated about two months later. A boy developed symptoms of tetanus fourteen days after a crush of the tips of the index and ring fingers. Three days later he was given a subcutaneous injection of twenty cubic centimeters of antitetanic serum. The next day the skull was opened and Roux injected four cubic centimeters of serum concentrated one-half. Three days following twenty cubic centimeters was given subcutaneously, and thereafter in the next five days fifty cubic centimeters in the same way. The patient recovered.

The second case developed without a history of wound. He was given serum subcutaneously on the next day; on the day following he received an intracerebral injection of five cubic centimeters of the concentrated serum. He died on the following day, by asphyxia.

The third case developed tetanus twelve days after injury. On the next day he received an intracerebral injection of six cubic centimeters of concentrated serum, then twenty cubic centimeters subcutaneously. He left the hospital on the twenty-second day following operation.

The fourth case developed tetanus without previous injury. Five days later he received an intravenous injection, which was twice repeated, until on the eighth day the intracerebral injection of six cubic centimeters of concentrated serum was given. This patient recovered.

The fifth patient developed tetanus thirteen days after injury. The following day seven cubic centimeters of the concentrated serum was injected intracerebrally. The next day the patient died, two days after the first appearance of symptoms and fifteen days after operation.

The sixth case developed symptoms nine

days after an injury, and was injected six days later. He recovered.

The seventh case, an eighteen-year-old boy working in a stable, exhibited numerous skin abrasions. Was operated on the day after tetanus developed. He died forty-one hours after operation, and eighty-one hours after the appearance of the first symptom.

The eighth case developed symptoms six days after a compound fracture of the right forearm. Two days later he was subjected to intracerebral injection, and died thirteen hours after operation, and about seventy-two hours after first appearance of symptoms.

The ninth case developed symptoms six days after a compound fracture of the radius. The following day an intracerebral injection of six cubic centimeters of concentrated serum was practiced, and twenty cubic centimeters of ordinary serum subcutaneously. The patient died the same day.

All these cases are taken from French journals. The autopsies show that the cerebral lesions caused by the injections were trifling.

The tenth case developed tetanic symptoms eight days after having stepped on a nail. The cicatrix of the wound was excised, lumbar puncture was made, and ten cubic centimeters of serum was injected under the arachnoid, but without success.

Two more cases were reported by Lucas-Championnière following laparotomy. These were treated after the new method, but without success, though intracerebral injection was made within twenty-four hours after the onset of symptoms.

Rambaud reports a case occurring in the practice of Robinson, in which tetanus appeared ten days after a laparotomy, the subcutaneous injection proving powerless; six cubic centimeters of slightly concentrated serum was injected into the cerebrum on the third day of the disease. This patient recovered from the tetanus, but died eleven days later of other causes.

Rambaud also cites a case occurring in the practice of Dr. Johnson. Tetanus developed seven days after the patient had cut off the end of his left thumb, while chopping wood. Two days later intracerebral injections were practiced. The patient died twelve hours after operation, and about sixty-five hours after the onset of the symptoms.

Church reports in full a case of a man who developed tetanus twelve days after suffering from an incised wound of the leg. Four days later the intracerebral injections were practiced. In addition, because of the suppurating wound of the leg, twenty-five cubic centimeters of antitetanic serum was injected into the veins. The following day several subcutaneous serum injections were made. The patient recovered.

Reviews.

System of Practical Medicine. By American Authors. Edited by Alfred Lee Loomis, M.D., Late Professor of Pathology and Practical Medicine in the New York University, and William Gilman Thompson, M.D., Professor of Medicine in the New York University. Volume IV: Diseases of the Nervous System and Mind, Vasomotor and Trophic Disorders, Diseases of the Muscles, Osteomalacia, Rachitis, Rheumatism, Arthritis, Gout, Lithæmia, Obesity, Scurvy, Addison's Disease.

Philadelphia and New York: Lea Brothers & Co., 1898.

This volume is the fourth and last of the series comprising the System, and in general maintains the high standard of the previous volumes. To this statement, however, some exceptions may be taken, as it appears to us the subjects have not been assigned with the careful discrimination characterizing the volumes we have already reviewed. Indeed, in several instances the contributors can hardly be considered as entitled to speak with such authority upon the subjects they have presented as we have a right to expect in a work of this character.

Again, the reading of the proof does not appear to have been done with sufficient care to exclude a number of typographical errors. Thus, on page 978, the last word of the third line counting from the bottom of the page is evidently intended to be "private;" and on page 973 the cause of gonorrheal arthritis is said to be the gonococcus of "Neissen," instead of Neisser.

With the exception of some 170 pages dealing with a group of miscellaneous subjects the volume, which contains 1082 pages in all, is devoted to diseases pertaining to the nervous system. It needs but a glance at the list of contributors to this portion of the volume to be assured that the sections written by Dana, Dercum, Finley, Gray, Mills, Putnam, Sinkler, and some others may be confidently turned to for an authoritative statement of facts. As above suggested, however, there are a number of contributors whose names hardly deserve to be associated with those just quoted. This lack of evenness, however, is a fault of most Systems—we might almost say *the* fault—but we are

disappointed to find it so accentuated in the volume under consideration, as in reviewing the previous volumes we took pleasure in commenting on its existence to a minimum extent. It is doubtless the keenness of this disappointment that has caused us to make, even in this general way, an unfavorable comment upon this volume, and we would not be understood as seriously detracting from the merit of the book, which in the main is of the highest possible order. Indeed, taken as a whole we consider this System to be the best of those presented to the profession in recent years.

In the volume under present consideration the section devoted to disorders of the mind —contributed by Pritchard, Ford, Noyes, Gray, Pearce Bailey, and Prince—is especially worthy of mention for the very satisfactory manner in which the various subjects are treated. The section is of decided value and has a distinct place in Systems of this character.

To the section devoted to miscellaneous subjects, the addition of which renders the volume more than ordinarily bulky, one of the editors (Thompson) figures as the principal contributor. He is responsible for very thorough and valuable articles upon Rheumatism, Gonorrhœal Arthritis, Arthritis Deformans, Gout, Lithæmia, and Obesity.

To praise too highly the general character of this System would be difficult, and the editors are to be congratulated upon producing a contribution to medical literature that has doubtless already met with the material appreciation that is its due.

T. G. A.

A Pocket Medical Formulary with Appendix. By W. M. Powell, M.D. Fifth Edition, Thoroughly Revised.
Philadelphia: W. B. Saunders, 1899.

This formulary, about the size of a large visiting list, has a thumb letter index and contains a large number of prescriptions which have been recommended by various practitioners, more or less eminent, for the various diseases under which the prescriptions are grouped.

After the preface there is given a list of the authorities which are quoted, and the name of the authority follows each prescription. The volume closes with a dose table, with a list of incompatibles, of measures, of drugs to be given by atomization, differential tables of the eruptive fevers, and a "surgical remembrancer," which is perhaps the most useful thing in its pages. A diet list and a table for calculating the periods of gestation complete the volume, which, as it has reached the fifth edition in seven years, evidently has proved popular with the profession.

A Manual of Physiology with Practical Exercises. By G. N. Stewart, M.A., D.Sc., M.D. Third Edition, Fully Illustrated.
Philadelphia: W. B. Saunders, 1898.

Books, like men, take the place of one another as time goes on, and this volume seems to have succeeded in preempting a large amount of the ground heretofore held by the smaller books on Physiology, as for example that of Yeo and Morrant Baker. If it has done so it has accomplished its task by reason of its valuable qualities, for the book as it stands to-day is perhaps the best manual of modern physiology in the English language.

A very great advantage which it possesses, over and above the fact that it is complete and accurate, is the easy style in which it is written, which makes its reading more interesting than if it were simply a mass of rudely stated facts. The rapid exhaustion of early editions has permitted Dr. Stewart to revise the book frequently and to keep it thoroughly up to the mark. Beside the general text, it also contains information which makes it useful for laboratory experimentation on the part of students.

A Syllabus of Materia Medica. Compiled by Warren Coleman, M.D.
New York: William Wood & Co., 1899.

This little book of 169 pages has been designed by its compiler to supply students with brief information as to the official names, official preparations, doses, and uses of drugs. Taking the drug "ether," for example, its official name is given, official preparations which are made from it are then named, its action is then defined in single terms, and its uses follow. Finally, seven points regarding caution in its use are mentioned, and all this is contained within a space of about two inches of text. As a rule we have not regarded with favor these condensed memorizing manuals, but we shall take pleasure in recommending to our first-year students the immediate purchase of this valuable little guide.

Acromegaly. By Guy Hinsdale, M.D.
Detroit, Mich.: William M. Warren, 1898.

This valuable essay, which was awarded the Boylston prize of Harvard University for 1898, was in part printed in the well known journal *Medicine*, edited by Dr. Moyer, of

Chicago, and is now reprinted in a large octavo volume of less than 100 pages. As may be imagined from the fact that it won this notable prize, it is a valuable and complete summary of our knowledge of this curious disease, which has been recognized but for a few years. Much of the essay dealing with references to reported cases could not be included owing to the difficulty of printing, but as it stands to-day it is a classical summary of our knowledge concerning the malady.

THE PHONENDOSCOPE AND ITS PRACTICAL APPLICATION. By Aurelio Bianchi, M.D., of Parma. Copiously Illustrated. Translated by A. G. Baker, M.D.
Philadelphia: George P. Pilling & Sons, 1898.

As may be imagined from the title of this small brochure, it is intended to exploit the advantages of the use of the phonendoscope, and, as is well known, it is claimed that by its use the physician is enabled to outline organs by means of auscultatory percussion and recognize sounds which otherwise would escape his ear. Most physicians have already tried this instrument, and have found that while it is of value in some cases it does not fulfil all the indications which it was hoped it would when it was first introduced, although of course it is a valuable aid to diagnosis.

A TREATISE ON DISEASES OF THE EAR. Together with a Brief Sketch of the Anatomy and Physiology of the Organ. By Albert H. Buck, M.D. Third Revised Edition. 8vo; pp. 592.
New York: William Wood & Company, 1898.

This revised edition of Buck's well known text-book covers the modern field of otology even more fully and satisfactorily than did its predecessors in the somewhat restricted list of diseases with which it had to deal. As an entirely new departure may be mentioned the inclusion of the complications incident to infections of the ear. These Buck has classed without hesitation as belonging to the otologist; and has contributed chapters upon Diseases of the Mastoid Process and Neighboring Structures, upon Periphlebitis and Infective Thrombosis of the Sigmoid Sinus, upon Meningitis, Extradural Abscess, and Abscess of the Brain, which might well serve as models for the writers of surgical encyclopedias.

This work is illustrated by many cases, a method of teaching which does not always accomplish its intended result, and one which in the main should be omitted in books designed to cover an entire subject.

The arrangement of the diseases dealt with, the clearness and directness of the writing, and the rational simplicity of the treatment, are all worthy of high praise, and are important factors in maintaining this work in its position as first of those devoted exclusively to diseases of the ear.

THE SEXUAL INSTINCT. Its Use and Dangers as Affecting Heredity and Morals. By James Foster Scott, B.A. (Yale University), M.D., C.M. (Edinburgh University). 8vo; pp. 436.
New York: E. B. Treat & Company, 1899.

Since the author states that this work is designed to furnish non-professional men with a sufficiently thorough knowledge of matters pertaining to the sexual sphere, medical criticism of it is, perhaps, out of place. It is, however, pleasing to learn that the knowledge which he possesses of this subject has, according to his own statement, been acquired through legitimate channels, and that he has discussed the subject-matter with men of science, doctors, ministers, lawyers, and men about town; also some of it prudently with women.

It would be most unfair to think that the author has made this compilation with any but the best motives. Much of the subject-matter, however, should not appear in a book intended for the laity. Some of the statements made are open to serious criticism.

The book is not sufficiently detailed to gratify the prurient, nor is it so scholarly and accurate that the scientific may learn therefrom. Therefore, to medical men, it is of little use.

ON THE ORIGIN AND PROGRESS OF RENAL SURGERY. With Special Reference to Stone in the Kidney and Ureter, and to the Surgical Treatment of Calculous Anuria. Being the Hunterian Lectures for 1898. Together with a Critical Examination of Subparietal Injuries of the Ureter. By Henry Morris, M.A., M.B. Lond., F.R.C.S. 8vo; pp. 288.
Philadelphia: P. Blakiston's Son & Co., 1898.

This work is not intended as a text-book on renal surgery, but includes three Hunterian lectures: the first devoted to the original progress of renal surgery and the conservative tendency of its recent development; the other two to renal calculi and injuries of the ureter. There is appended a table of cases operated upon, and a final series of cases of calculous anuria.

In his first lecture the author calls attention to the fact that he was the pioneer in the operative treatment of renal lithiasis, having successfully removed in 1880 a mulberry calculus from the undistended, and to the naked eye quite normal, kidney of a young woman. The kidney was exposed

through the oblique lumbar incision, and the stone reached and removed through the renal parenchyma.

In considering the methods of restoring the continuity of the ureter after its complete division, Morris gives preference to that of Van Hook. He states that renal calculous disorders are the most frequent and the most painful of surgical diseases of the kidney. Nephrotomy is one of the most successful and one of the safest of major operations, and cures absolutely, saving the kidney from an otherwise inevitable progressive destruction, and the patient from what at any moment may prove to be imminent danger to life.

The pages devoted to Symptomatology are most important and interesting.

These lectures, representing as they do the results of careful observation of a great number of cases, form a contribution of more than passing interest to the current literature of renal surgery. They are destined to make early diagnosis more certain and to popularize conservative operations, having for their end, and performed in time, restoration to complete health from usually a condition of intolerable suffering.

No writer upon these subjects can carry greater personal weight than does Morris.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

During the past month death has been busy in the ranks of the profession. First and foremost we have to mourn Sir William Jenner; though at the advanced age of eighty-three, he had in the nature of things for some years lived in retirement from active medical work. His contributions to medical science and literature were not numerous, but all of first-rate importance. Perhaps the best known is his essay establishing the distinction between typhoid and typhus fever, published fifty years ago. It is true he was not absolutely the pioneer of this fact of clinical knowledge, but his paper, based on a minute clinical and pathological study of sixty-six fatal cases, first established the distinction beyond question. His point of departure was the difference in the post-mortem appearances of the bowel, and with this he associated differences in the clinical features of the disease. His only other important work was the Clinical Lectures and Essays on Rickets, Tuberculosis, Abdominal Tumors, and other Subjects. To his observations of rickets the most modern medicine has but little to add. Sir William Jenner was the trusted court physician of Queen Victoria for upwards of thirty years, and held also the blue ribbon of the profession in Great Britain as President of the College of Physicians.

Two other octogenarians have also gone to their rest: Dr. C. J. Hare, a much esteemed physician of the past generation, and Dr. William Munk, Librarian of the College of Physicians, who, outside the sphere of medicine, made several graceful contributions to literature. Better known to Americans will be the name of Professor Kanthack, who has just died at the early age of thirty-five. He leaves behind him a memorial of colossal industry that would have done honor to a man of twice his years.

Medical science has this week been the favored recipient of a princely gift of £250,000 from Lord Iveagh. The sum is to be handed over to the Jenner Institute of Preventive Medicine. This institute is the quondam British Institute of Preventive Medicine, and is the new name it has assumed on acquiring the funds of the Jenner Memorial Committee. In its new home on the Chelsea Embankment the institute should be a national home for bacteriological investigation. Lord Iveagh deserves the thanks of the nation for wiping away a standing reproach against the wealthiest nation in the world for neglecting to make adequate provision for scientific research. It is to be hoped that we may no longer have to cast our eyes oversea for the pioneers of scientific medicine.

Another handsome gift of £20,000 has been placed to the funds of the National Association for the Prevention of Consumption and other forms of Tuberculosis by Messrs. Wernher, Beit & Co., of South African notoriety, for building and endowing a sanatorium for patients of limited means. The Association is thriving steadily under the royal patronage conceded to it.

The School of Tropical Medicine is undergoing the baptism of fire, if we may thus symbolize the rancor of professional jealousy. The difficulty that has arisen is this: The Colonial Secretary very properly was anxious to establish a center for the study of tropical diseases; the natural home for such a

school should have been the Dreadnaught Hospital of the Seamen's Society at Greenwich, which has a Branch Hospital of Ease at the Albert and Victoria Docks in East London. The function of this branch is to receive patients on their arrival by sea, and to feed the Greenwich Hospital. Herein is the *casus belli:* Dr. Patrick Manson is adviser to the Colonial Office, and therefore has the ear of the Colonial Secretary, and was also recently appointed physician to the Branch Hospital. Leaving out of count the personal issues of the dispute, the grievance is that the Branch Hospital has latterly evinced a voracious appetite for tropical diseases, and has supplied the mother hospital with an innutritious diet of purely chronic cases of non-tropical maladies; and now the starvation process is to receive official recognition by the establishment of a School of Tropical Medicine in connection with the Branch Hospital. One point is quite clear, namely, that such a school is an imperative necessity; but we do not feel disposed to adjudicate on the question of the preferable site.

At the Edinburgh Medico-Chirurgical Society Dr. Lovell Gulland read notes of a case of chronic sulphonal poisoning, in which thirty grains of sulphonal had been taken every night for about six weeks. About a week prior to his death he developed ataxia of all the limbs, lassitude and drowsiness, and then hematoporphyruria. Post-mortem little was to be seen but fatty degeneration of the heart and general stasis in all the organs. Under the microscope could be made out necrosis of the secreting epithelium of the kidney, and early degenerative changes in the liver and suprarenal capsules. Dr. Gulland insisted on the presence of the renal changes in both the acute and chronic forms of sulphonal poisoning, and ascribed the fatal issue quite as much to these as to the toxic action of the drug upon the blood. In treating cases of acute poisoning the objects to bear in mind were: (1) to remove as much as possible of the insoluble drug from the alimentary tract; and (2) to promote free diuresis; whilst in the chronic form the free use of alkalies was indicated. Dr. Gulland urged that sulphonal should not be given in all cases, especially those where there was constipation, great prostration, or kidney disease. Gulland's observations corroborate those of Stern on the changes in the renal epithelium, with the exception that he found no hemorrhagic extravasations. The alleged hemolytic action of sulphonal rests on very insufficient evidence. The moral of Gulland's case seems to be that sulphonal should be regarded as a cumulative poison, and not as a hypnotic agent that can be safely left to the discretion of the patient. Its comparative insolubility tends to make cases of acute poisoning comparatively rare, while chronic poisoning is not infrequent. For this same reason cases of acute poisoning respond more readily to treatment. We have ourselves seen 120 grains inadvertently taken in a single dose by a patient suffering from alcoholic delirium; the only effect was restoration of the healthy mental condition in the course of twelve hours without any toxic effects. Cases of chronic poisoning would undoubtedly be far less common if the bowels were kept well open during administration of the drug; and in this same way the annoying drowsiness that so often persists through the following day might in part also be avoided.

Dr. Ramsay notes a case of serous catarrh of the middle ear produced by the administration of iodide of potassium. The iodide was administered in doses of three grains three times a day, and the symptoms came on suddenly after three days. There were the familiar signs of iodism in discharges from the eyes and nose, but so far as our experience goes catarrh of the middle ear would seem to be a very rare result. Another interesting observation in the same case is that the same dose of sodium iodide was well tolerated, and as is usual in these cases a considerable increase of the dose of the potassium salt also led to subsidence of the symptoms of iodism.

Among minor ailments one of considerable interest has just come under our own notice. We were called to see a young lady, who complained of violent pain in the neck, radiating to the ears and temples; the only other symptom communicated by the patient was dysphagia. Examination of the larynx showed it to be absolutely normal, and there was no reason to suspect disease or injury of the esophagus, as the dysphagia was as great when performing the movement of swallowing as when actually swallowing food. This led us to suspect the thyroid gland, and there was some confirmation of this idea in the fact that menstrual disturbances were prominent. The patient had already exhausted the list of domestic remedies, and we found on inquiry that heat instead of relieving the pain had merely served to intensify it, and induce throbbing in the neck.

There was no visible swelling of the thyroid. Believing that we had to deal with some rapid enlargement of the thyroid, either due to congestion or hypersecretion, we ordered cold applications to the front of the neck, and a mixture of belladonna and sulphate of magnesia. The relief was almost instantaneous. We are aware that the causation of the symptoms is open to question, but this will be much allayed by the information that we have since elicited that another sister of the patient suffered from the same symptoms and had an actual transitory goitre under very much the same circumstances of health. This fact was quite unknown to the patient. The condition would thus be analogous to the acute pain over the lung in some cases of active pneumonia in the absence of pleurisy, and the severe splenic pain in many cases of enlarged spleen—particularly leucocythemia—in the absence of perisplenitis. How rapidly ice poultices will relieve the former condition is of course familiar, but we fancy that the same treatment has not been often adopted for the latter condition. We have tried it in two cases of rapid splenic enlargement from leucocythemia with marked benefit after all other remedies had been attempted. If to this category we may refer the case we have narrated, we have another instance of severe pain due to rapid expansion of the capsular investment of an organ. It seemed worth while to record even so slight a triumph of rational therapeutics, as the relief of even a small pain on rational lines is a substantial addition to the stock in trade of medicine.

At the Royal Medical and Chirurgical Society Messrs. Hutchinson and Barnard brought forward a communication on an improved method of treatment of separation of the lower epiphysis of the femur. They showed by means of skiagrams that it was easy to obtain reduction and also to maintain it by full flexion of the knee so that the heel touches the buttock. There is no difficulty in getting the patient to tolerate the position, and after ten days or a fortnight the limb can be put on a Macintyre splint and subsequently gradually straightened. The accident almost invariably occurs when the knee is hyperextended, so that the epiphysis is drawn forward and the diaphysis projects backward into the popliteal space; at the same time some rotation or twisting of the leg, and corresponding projection of the diaphysial end, is not infrequent. All these points were illustrated by skiagrams, as also a remarkable production of new bone in a comparatively normal manner even when some displacement persisted. This method of full flexion would remove the necessity of forcible efforts at reduction, which of all things were most calculated to damage the epiphysial disk.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

Dr. Fournier, professor at the Faculty of Medicine, and physician of the St. Louis Hospital, who is so well known on account of his works on syphilis, gave a lecture recently on the preventive treatment during gestation of hereditary syphilis. The speaker began by saying that he would follow out his usual habit of commencing his course of lectures by examining a question concerning more specially the conduct to be followed by a physician in his practice.

Dr. Fournier examined the following case: A woman is pregnant and her husband syphilitic. Should any treatment be instituted to prevent any syphilitic heredity? Of course, the physician need not hesitate when the woman is already infected with syphilis, but what should be examined is a case where there are no signs of infection. The woman may be pregnant for the first time, nothing can indicate whether she will have a healthy child, and the husband, weighed down by his approaching paternity, and remembering the sins of his youth, asks whether anything can be done to prevent any unfortunate results of his former syphilis.

Much more frequently the case is quite different. The woman has already had two or three miscarriages, or a previous child may have been affected with hydrocephalus.

A treatment should be instituted in such cases; and such conduct is quite rational, as we have learned from Dr. Porak's works on the subject how quickly drugs administered to the mother pass into the child's circulation. Dr. Pinard, the well known accoucheur, once told Dr. Fournier that he had yet to find a case in which a woman had been injured by taking this treatment.

Another thing to be considered is whether this treatment is useful for the child. On this point there can be no discussion. If it is the first gestation, the child is born under good conditions, generally speaking; if there have been a number of miscarriages there is a likelihood that there will be no recurrence

of this. Dr. Fournier cited several examples of this fact, of which the following is an instance: A young man was treated for syphilis and was married two years later. A first child died of congenital debility, a second one suffered from an eruption of syphilides on the fifth week after birth and died. The father consulted Dr. Fournier after this, with his wife, who showed no signs of syphilitic infection, and was just beginning a third pregnancy. A syphilitic treatment of protoiodide of mercury and iodide of potassium alternately was given, and the result was a normal parturition.

Dr. Fournier said that it could be given as a safe rule that when a woman was with child, and this child is in danger on account of the syphilitic taint of the father, a specific treatment of the mother, though she be healthy, is a safeguard of great importance for the child, and should be applied in all such cases.

From what has just been said it should not be thought that an energetic treatment should be followed whenever the father has had syphilis. The physician must decide according to circumstances. There is a great difference between, for instance, a man who contracted syphilis six or seven years ago, who has followed a good treatment and has shown no symptoms since, and a man who has been recently infected, has followed no treatment, and whose wife has had several miscarriages. Between these two extreme limits there is an open field for a variety of cases, and the physician will be called upon to exercise all his sagacity in deciding what is the best course to be followed. In a general way it is better to be cautious and administer drugs where there is some doubt. Once this question is settled, an obstacle presents itself immediately. Is the woman to know for what she is being treated? If the husband has already confessed to her, or intends doing so, the way is plain, but otherwise a physician will be called upon to exercise all his ingenuity to prevent her from learning the reason of the treatment followed. Here the spectre of the *belle-mère* mother-in-law, so potent in France, is called up. She will want to know why her daughter is obliged to take a lot of pills when she is to have a child, and will remark that, when she had children, no such means were found necessary. Dr. Fournier spoke of a case in point, where he had been called in by Professor Tarnier, and where the mother-in-law had been solemnly assured there was no mercury in those pills. One day this lady came to him in a fine state of rage, and said to him: "I have had your pills examined by my druggist, and they are full of mercury." This, Dr. Fournier added, should in no wise prevent a physician doing what is best for his patient.

A last point remains to be examined, and that regards the method of treatment. The intervention should be sufficiently rapid—that is, begun in the first period of pregnancy. After the fifth month Dr. Pinard says there is not much hope of producing a good result. Mercury should be used, as being much more active as a preventive, and as an eradicator of any hereditary influence. Moreover, it is much more easily taken than iodides, which so many women cannot tolerate. Protoiodide of mercury is therefore the best preparation and should be given in doses of 0.025 to 0.05 gramme daily. This dose should be taken for twenty days, then a rest of ten days, and so on during the continuance of pregnancy.

The use of guaiacol in the treatment of erysipelas has been tried on adults, but this method has not until recently been employed for children. Dr. Villa, of Genoa, has found it useful in three cases of erysipelas. In his first case the infant, only ten days old, was suffering from umbilical erysipelas, extending from the thorax to the pubis. The temperature was high. The child was given a hot boracic acid bath, and the physician applied all over the affected part and two centimeters further a twenty-per-cent solution of guaiacol in oil, and covered this with a piece of oiled silk. Half an hour afterwards the temperature had gone down from 39.8° to 38.4° C., with abundant perspiration. The next morning the temperature was only 37.5° C., though the area affected had slightly increased in size, notwithstanding a slight change for the better in the color of the skin. The temperature having gone up again in the afternoon to 40° C., a second application was made, and this was done for six days, alternating with the use of balsam of Peru, used to prevent irritation of the skin. Recovery was complete twelve days after the beginning of the affection. In two other cases solutions of thirty or forty per cent were used and proved highly successful. Dr. Villa did not remark any untoward effects from the use of guaiacol.

The 25th of December is the date chosen in Paris for the changing of the services held by the various surgeons and physicians, and at the Beaujon Hospital, for instance, Dr. Anger retired and was replaced by Dr. Bazy,

who has done some work on urinary diseases. Dr. Lucas-Championniere, the great advocate of massage, was called to the Hôtel-Dieu, and Dr. Rigal was replaced by Dr. Lacombe. Dr. Th. Anger, who is specially known for an excellent work he published on cancer of the tongue, was offered a sort of farewell reception in the amphitheater of the hospital, which was garnished with palms and flowers for this occasion. Dr. Tuffier, surgeon of the hospitals, delivered an address, in which he spoke at length of Dr. Anger's work and of the affection his pupils had for him. Then the *surveillante*, or head nurse, delivered a short speech in behalf of the attendants in the wards, and then the *clou* of the whole ceremony. Dr. Ledentu, surgeon at the Neckar Hospital, arose and spoke of the long friendship which had existed between him and Dr. Anger, dating back to the time when they were working together as house surgeons. His speech was most interesting, and towards the end his emotion got the best of him and he embraced Dr. Anger, which sounds very French perhaps to some of my readers, but which was truly touching and not without its own dignity. Dr. Anger answered by a few words, which were listened to with the greatest attention. He said that in his career he had tried to follow out this precept of doing what one could without attracting too much attention, and he prided himself upon always having had good house surgeons to help him in his work; and he ended by describing the death scene of his master, Nélaton the elder, the surgeon of Napoleon III. Nélaton was suffering from Bright's disease and had had himself placed on a mattress on the floor. He told Dr. Anger to bend over him, and when he was near enough for him to hear what he had to say, he whispered: "Remember, do not much make noise, do good" ("*Ne faites pas de bruit, faites du bien*").

At a meeting held by the Society of Surgery of Paris Dr. Quenu spoke of a case of pseudarthrosis where thyroidin was used with good results. The patient was a woman twenty-four years old, who sustained a supracondylian fracture of the femur, with piercing of the skin by a fragment and consequent infection. After three months the fracture was not yet consolidated. Mr. Duval, Dr. Quenu's house surgeon, gave her thyroidin, and after five days' treatment she was able to walk with a silicate splint, and she is now quite recovered.

In another case a patient had been operated for exophthalmic goitre, and surgical myxedema had necessitated the use of thyroidin. This patient had later a bimalleolar fracture, and by using thyroidin recovery seemed to be hastened.

Dr. Reclus cited a similar case where thyroidin had proved most successful in a case of pseudarthrosis. On the other hand, in two other cases thyroidin proved of no avail.

RIGHT INGUINAL HERNIA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I desire to report the following case, which very recently occurred in my practice:

On November 25 the patient, a woman aged about thirty-five years, called at my office stating that she was suffering from a hernia which had existed for a number of years, but which she had always been able to reduce until about a week previously, when it "came down," and in spite of all her efforts could not be replaced. Examination disclosed in the right inguinal region a mass slightly larger than a walnut, which was dull on percussion, and pressure on which elicited pain.

An attempt was made to reduce by taxis, but without success. Patient was then sent to her home and told to make hot applications over the tumor until the following day, when under chloroform another attempt was made to reduce by taxis, but this also failed. Believing the mass to be omentum, and no signs of strangulation being present, patient was advised to remain quiet for a few days, meanwhile continuing the hot applications as before.

She was next seen by me on December 5, when the mass had become less tender and seemed to be somewhat reduced in size. Taxis without anesthesia was again tried without result. A spray of ethyl chloride was next applied over the mass until the superficial tissues were frozen. The patient was then placed in the inverted posture and told to take two or three deep inspirations. Upon replacing her on the bed it was found that the mass had been partially reduced, and very slight manipulation caused it entirely to disappear.

While this case does not, of course, prove the superiority of any particular method, it does serve to emphasize the fact that a hernia that cannot be reduced under anesthesia will sometimes yield to simpler means.

G. H. B. TERRY, M.D.

WYALUSING, PA., Dec. 8, 1898.

—THE—

Therapeutic Gazette.

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THE CORRECTION OF DEFLECTIONS OF THE NASAL CARTILAGINOUS SEPTUM, WITH A REPORT OF SIX CASES SUCCESSFULLY TREATED BY THE ASCH OPERATION.

BY P. S. DONNELLAN, M.D.,

Graduate of the Royal College of Physicians and Surgeons, Ireland; Fellow of the College of Physicians of Philadelphia; Laryngologist to St. Mary's and St. Agnes' Hospitals, Philadelphia.

Until within a comparatively recent time our knowledge of the functions of the nose was limited to the essential facts that it was the organ of smell and that it provided an entrance for air into the larynx when the mouth was closed. But with the advances made in the study of rhinology it was discovered that the nose performed important duties besides those I have mentioned, and that any marked deflection from its normal structure was attended with corresponding impairment of function and the development of pathological conditions, not only in the nose, but in the nasopharynx and larynx. Boch has shown in his important studies on the physiology of nasal respiration that the temperature of the inspired air was raised about forty degrees in its passage through the nasal chambers. Lennox Browne has drawn attention to the part taken by the

nose in voice production, particularly of the vowel sounds, and declares that phonation and articulation are not only impaired in the victims of nasal obstruction, but that in this condition singing in the falsetto register is impossible.

In addition to the impairment of the physiological functions of the nose by obstruction of its chambers, many pathological conditions may be developed, such as postnasal catarrh, chronic pharyngitis, enlargement of the tonsils, chronic laryngitis, and bronchitis. Marked deflections of the septum play an important part in the production of these conditions, as is well understood, and it is the duty of the rhinologist to correct them by appropriate surgical measures.

That the septum is rarely perfectly symmetrical is shown by the researches of Harrison Allen and others, who found in an examination of over two thousand skulls marked septal deviation existing in about seventy-five per cent. These researches referred only to the bony septum and did not include deflections of the cartilaginous septum, which as a rule is alone affected. A deflection may involve either the bony or cartilaginous portions, or both. Sometimes it is sigmoid in shape, being convex below and in front and concave above and behind—the opposite condition existing in the other nostril. Usually, however, the deflection presents but a single curve, which may be rounded or angular, and generally occurs along sutural lines.

In two of my cases the septal cartilage was dislocated from the perpendicular plate of the ethmoid and from the vomer, completely obstructing the nostril and deflecting the tip of the nose.

Nearly all deflections are the result of traumatism occurring in childhood, when falls and blows on the nose are not uncommon, and for obvious reasons are seen far more frequently in the male than in the female.

The symptoms are those of stenosis, postnasal catarrh, dryness of the mouth and pharynx, and in advanced cases chronic laryngitis and bronchitis may occur. Such patients are liable to colds in the head; they frequently develop hay-fever if exposed to the exciting cause, and many cases of catarrhal deafness have their origin in septal deflections. In this connection it may be worthy of mention that the passage of a Eustachian catheter is attended with great difficulty, and in some instances is impossible where marked deflection of the septum is present. From the above statement it will readily be seen that the correction of septal deflections is imperative if we wish to restore the physiological functions of the nose and relieve the varied pathological conditions to which they give rise.

It is not my intention in this article to describe the various surgical procedures which from time to time have been devised for the correction of cartilaginous deflections, but, as indicated by the title of my paper, to draw attention to the value of the operation of Asch, of New York, in dealing with such cases. It was first performed by him about sixteen years ago, and the details of six cases he operated on with success were communicated by him to the American Laryngological Association at its meeting in 1890. Emil Mayer reports two hundred cases of septal deflection successfully treated by the Asch operation in the *New York Medical Record* of February 5, 1898.

A set of special instruments have been devised for the operation, which are reproduced in the illustrations. Fig. 1 shows a blunt dissector or separator for the purpose of separating any adhesions which may exist between the deflected septum and the lower turbinal on the affected side. Fig. 2 shows the special scissors used. As will be seen, it is a powerful instrument with slender prongs curving outward so as to embrace the septum, and terminating in two blades, one of which has a triangular-shaped cutting edge, the other being blunt. A scissors with angular blades is shown in Fig 3, and is used in cases where the deflection lies near the floor of the nose, when the straight scissors would be useless. A compressing forceps is shown in Fig. 4, and is used to compress the septum in place after it has been incised by the scissors. It is somewhat like the Adams forceps and fulfils the same object. Fig. 5 shows the vulcanite hollow perforated splints of Asch, used to keep the straightened septum in place after operation, and Fig. 6 its modification suggested by Mayer, which is more oval in shape. These are made in different sizes to suit individual cases.

The operation is performed with strict antiseptic technique and is best done under a general anesthetic, unless this is contraindicated, when cocaine anesthesia may be used. The patient is prepared in the usual way; and the nasopharynx is first sprayed with Dobell's solution and afterwards with peroxide of hydrogen, the object being to

FIG. 1.

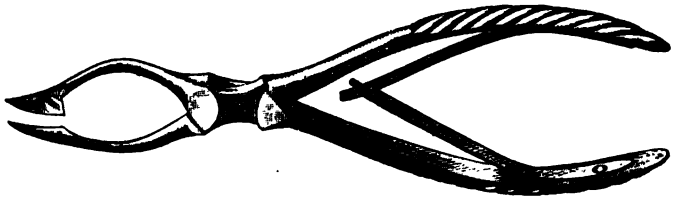

FIG. 2.

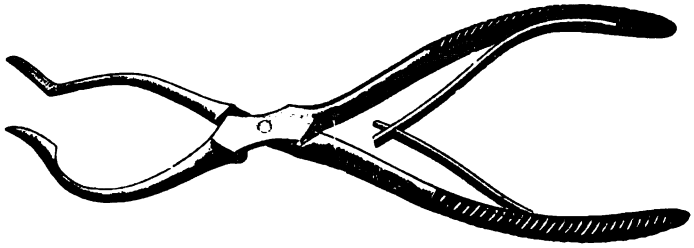

FIG. 3.

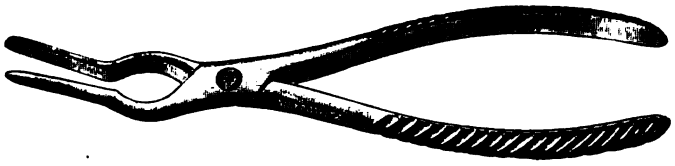

FIG. 4.

FIG. 5.

FIG. 6.

make the nasal chambers as sterile as it is possible for a mucus-secreting cavity to be. All the instruments, including the vulcanite nasal splints, are sterilized by boiling.

The patient having been placed on the table and etherized, the head is kept low so as to avoid the danger of blood entering the larynx. When complete anesthesia has taken place, the operator passes the blunt dissector into the obstructed nostril and detaches the septum from the adjacent turbinate. He then inserts the scissors—the cutting blade in concave side of the septum and the blunt blade over its most convex portion. The blades being parallel with the floor of the nose, they are firmly closed and the septum is cut through. The scissors is now withdrawn and reinserted, this time pointing towards the root of the nose so as to make, if possible, an incision crossing the first at right angles. The septum having been cut through in the manner I have described, the compressing forceps are inserted well back in the posterior nares, so as to embrace the four segments of the septum, they are firmly closed, and the deflection is corrected. When bleeding, which is usually very slight, has been controlled by ice compresses and by douching of the nares with peroxide of hydrogen, the vulcanite splints are inserted, a large one in the naris previously deflected and a smaller one on the opposite side. The patient is put to bed, given a sedative if needed, and kept on a light diet. The nostrils are sprayed with Dobell's solution every four hours, and the day succeeding the operation the smaller splint is removed, the larger one being allowed to remain until two days later, when it is removed to be sterilized, and is then reinserted. The patient is discharged from the hospital on the fourth day and is instructed to report daily to have the splint sterilized and reinserted.

The patient is shown how to remove and insert the splint himself, which he does, and having worn it for almost a month he dis-

cards it. The septum is then usually found to be perfectly straight, and no further treatment is necessary. Occasionally, however, a small spur may need removal with the Bosworth saw or cutting forceps.

The following report of six cases of deflection of the cartilaginous septum in which I performed the Asch operation successfully will serve to illustrate its usefulness in correcting the deformity:

CASE I.—Edward B., aged sixteen years, presented himself at my clinic at St. Agnes Hospital on February 2, 1898. When five years old he fell and fractured his nose, the tip being turned to the right. Since then he had suffered from complete obstruction of left nostril with severe postnasal catarrh, and two years previous to his visit a purulent otitis developed with much impairment of hearing.

Examination showed complete deflection of the cartilaginous and bony septum to the left, with adhesions between it and the left lower turbinal. On March 10 I performed the Asch operation under ether, but as the compressing forceps did not engage all the segments of the cut septum, a second operation was done two weeks later, with complete success, the boy a month afterwards being discharged from the dispensary with a perfectly straight septum and relief from his postnasal catarrh.

CASE II.—Bessie, aged six years; first seen at St. Agnes Hospital, March 22, 1898. When fifteen months old she fell from a chair and fractured her nose, which was tilted to the right. Her mother stated that the child was a mouth breather since that time, and noticed a projection from the left nostril, which was treated by the family physician as a nasal polypus. On examination I found the alleged polypus was the left side of a very deflected septum which completely obstructed the nostril. On March 26 the Asch operation was done under ether, the patient making an uneventful recovery, the septum being perfectly straight and the tilting of the nose removed.

CASE III.—Ellen C., aged nineteen years, pupil nurse, had suffered from obstruction of left nostril with postnasal catarrh and muffled voice for five years. There was no history of injury to the nose. Examination showed the septal cartilage deflected to the left, causing complete obstruction in the nostril. The Asch operation was done under ether on April 16, 1898, and the result was entirely successful. Six months later it was found that the nasal tone of the patient's voice had disappeared and its timbre had greatly improved.

CASE IV.—Judge E., aged sixty-two years, had suffered for several years with obstruction of the left nostril, which became complete when driving or bicycling in a strong wind. He also complained of postnasal catarrh and dryness of the throat. Examination showed sigmoid deflection of the cartilaginous septum to the left with an adherent lower turbinal. There was marked chronic pharyngitis. The Asch operation was performed under ether at St. Agnes Hospital on March 18, 1898. There was considerable hemorrhage on account of the plethoric condition of the patient, but it was readily controlled by iced compresses and syringing the postnares with peroxide of hydrogen. The patient made an excellent recovery, with a straight septum and relief from his nasopharyngeal symptoms.

CASE V.—Miss H. I., aged nineteen years, was first seen in June, 1898, with the following history: Four years ago, while entering a dark room, she struck her nose against an open door, and a violent attack of epistaxis followed. Her attending physician told her that the bridge of her nose was fractured and that an operation would be required to straighten it when the swelling had subsided. Following this accident she suffered constantly with nasopharyngeal catarrh and nasal obstruction, the latter being most annoying when she rode her bicycle. On examination I found the cartilaginous septum dislocated to the right, causing complete obstruction in that nostril. I performed the Asch operation under ether on June 20 at patient's residence, and the result was very gratifying.

CASE VI.—Miss K. C. consulted me on October 14, 1898, for persistent nasal obstruction in right nostril, accompanied by severe neuralgic pains in right side of head and constant weeping of the right eye. The trouble was of two years' duration, and as far as patient knows she never had any injury to her nose. Examination revealed an angular deflection of the cartilaginous septum, which pressed on the right lower turbinal, causing obstruction to the nasal duct. The Asch operation was performed under ether on October 27, and the patient made an uneventful recovery. Two months later she reported the neuralgic pains had disappeared, while examination showed a straight septum and a nasal duct unobstructed.

*JEQUIRITY IN THE TREATMENT OF GRANULAR CONJUNCTIVITIS.**

By William M. Sweet, M.D.,
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Shortly after the publication in 1882 of the first paper of Dr. L. De Wecker, of Paris, on the use of jequirity in granular conjunctivitis and pannus, the treatment was tried in all the large ophthalmic clinics of the world, and the descriptions of the cures effected were of the most glowing character. The remedy was recommended by De Wecker as a substitute for the method of inoculation with blennorrheic pus, a form of treatment that was sometimes employed in obstinate cases of granular conjunctivitis, but which was followed occasionally by destructive inflammation of the ocular structures. After jequirity had been employed for some time, numerous cases were reported of extensive reaction following its use, with the production of diphtheritic inflammation and the presence of perforating ulcers of the cornea.

With a view of determining the experience of investigators in this country in the treatment of granular conjunctivitis with jequirity, Dr. H. Knapp† published in 1884 a series of papers from various clinical observers, which proved the value of the new remedy, but also showed its dangers. In summing up his own experience, Dr. Knapp stated that jequirity cured trachoma more quickly but less safely than other remedies; that its action was neither uniform nor always controllable; that it caused more or less atrophy of the conjunctiva and the formation of cicatricial tissue; and that the greatest danger consisted in the occasional development of severe diphtheritic conjunctivitis and more or less extensive destruction of the cornea. One of the reports of the series mentioned, that of Dr. Hasket Derby, of the Massachusetts Eye and Ear Infirmary, showed twenty-four cases treated, of which number seven were followed by corneal ulceration. With the mass of testimony unfavorable to the use of the remedy, it was naturally soon abandoned in most clinics, and at the present time is only occasionally employed. Recently Dr. Wm. Cheatham‡ has reported a case of trachoma cured by weak infusions of jequirity, although he especially recommends the drug in powdered form, dusted upon the everted lids, a method of employment which he claims is free from danger.

In the early experiments an infusion of the powdered seeds, of a strength of from three to five per cent, was used. In the great majority of cases a single application of the infusion freely brushed over the everted lids was sufficient to produce a violent jequirity ophthalmitis, although in some clinics the solution was employed three times a day for three consecutive days.

With the general experience of the profession opposed to jequirity I did not begin the use of the remedy with any desire to disprove the findings of these observers, but to endeavor to secure some form of treatment that would benefit a patient whom I had been treating for several months, and in whom the usual remedies had proved of little value. The young woman had been under treatment by different surgeons for about three years, and during this time was operated upon twice, once by scarification and once by rolling, without much benefit. An annoying feature of her case was the acute attacks, which appeared at frequent intervals and compelled her to cease work for several days. As a forlorn hope I turned to jequirity, and started with an infusion of two grains to the ounce of water, making the application with a cotton mop to the everted lids every third day, and increasing the strength of the infusion one grain of the powdered drug each time. At the end of two weeks there was marked improvement in the pannus which had existed, and three months after beginning the treatment the pannus had disappeared, there were no acute exacerbations of the disease, and the granulations of the lids had practically disappeared. At no time was there severe inflammatory reaction following the remedy, and the secretion was neither profuse nor membranous in character. The strongest infusion used was twelve grains of the powdered seeds to the ounce of water.

Following the favorable results achieved in this case, I instituted the treatment in about twenty-five cases in the dispensary service of Dr. H. F. Hansell at the Jefferson and Polyclinic hospitals. In every case except one the results of the treatment were most gratifying. The reaction following the treatment in these cases was no greater than is seen with the ordinary remedies; the swelling or discharge was not sufficient to call for

*Read before Section on Ophthalmology, College of Physicians of Philadelphia, Jan. 10, 1899.

†*Archives of Ophthalmology*, vol. xiii, p. 17.

‡Transactions Section on Ophthalmology, American Medical Association, 1897.

special attention; and no membranous exudate formed in a single instance, nor has the cicatrization been greater than would be expected with the usual forms of treatment. It would therefore seem that purulency, which was the effect aimed at in the early use of the drug, is not an important factor in the cure.

In the one case above referred to there existed at the time the treatment was begun considerable conjunctival secretion, with marked pannus and several shallow corneal ulcers. The weak infusion seemed to aggravate the conditions present, and was at once stopped.

One of the patients benefited by the treatment had a trachomatous pannus of both eyes which had existed for a long time, and which failed to improve by the usual forms of treatment. The vision was so poor that it was necessary to lead him to the clinic. After two months of treatment with jequirity the pannus disappeared, leaving a slight haze of the cornea, and he is now able to read large print.

In preparing the infusion, cold water is placed upon the powdered seeds in a loosely corked bottle, and after macerating for twenty-four hours is filtered and used. The infusion should be made fresh each time it is used, as it soon decomposes and becomes inert. De Wecker states that the infusion may be made with cold water three hours before use, and that the strength is as great as when macerated for twenty-four hours. The first application is from two to four grains to the ounce, a cotton mop soaked in the infusion being freely passed over the everted lids. The application is repeated every second or third day, being increased in strength one grain of the powder each time. As soon as a slight discharge appears the treatment is discontinued for about four days, and is then begun again with the next stronger infusion. In some cases an infusion of twenty grains to the ounce has in this way been employed without causing any severe inflammatory symptoms.

From the results achieved by the use of jequirity in weak infusions, gradually increased in strength until the susceptibility of each case is determined, I believe the remedy is one of the most valuable that we have for the treatment of trachoma, especially when associated with pannus, and that employed in this way it is devoid of danger to the structures of the eyeball or lids. It is not indicated in acute trachoma, nor in cases in which there is much purulent secretion.

THE USE OF BENZOSOL IN CHRONIC PULMONARY TUBERCULOSIS.

By Julius L. Salinger, M.D.,

Chief of the Medical Out-Patient Department, Jefferson Medical College Hospital, Philadelphia; Physician to Philadelphia Hospital.

It has been the routine practice in the out-patient medical department of the Jefferson Medical College Hospital to treat the patients suffering from chronic pulmonary tuberculosis by the internal administration of creosote in ascending doses. While this treatment was followed by uniformly good results, the repugnance of the patient for the smell and taste of the remedy was in the great majority of the cases difficult and often even impossible to overcome, especially in those cases complicated by anorexia, nausea, vomiting, eructations, and general gastric disturbance. It occurred to the writer that if a remedy could be found that would have the same beneficial effect as creosote, without the objectionable elements (taste, smell, etc.), it would be doubly beneficial to the patient. With this end in view benzosol was given a fair and unbiased trial. The remedy was given alone; no other medicament or tonic was used in combination with the benzosol. Five-grain doses, and in some instances ten grains, were administered three times daily. The benzosol was given in the form of powder or compressed pill. The following table, which was kindly prepared by Dr. C. A. Holder, assistant demonstrator of clinical medicine, shows the result. These investigations were carried on for over six months.

Benzosol is a synthetical preparation, and is a combination of benzoyl and guaiacol. It is free from cresol bodies. It is a colorless crystalline powder, with a slightly pungent taste, and is not soluble in water. It is said to contain fifty-four per cent of guaiacol.

The remedy is unaltered by the gastric secretion, requiring the alkaline juices of the intestine to liberate the guaiacol and the benzoic acid, into which the drug is broken up when absorbed. It has the great merit over both its constituents that it does not affect digestion, and that it is odorless and tasteless.

No attempt is made to claim for benzosol that it is a specific in chronic pulmonary tuberculosis. The fact may, however, be emphasized that it has all the advantages of creosote without its drawbacks. No com-

No.	Name.	Age.	Lesion.	Diagnosis.	Result.
1	Mrs. M. E.	45	Dulness over upper middle of right lung; vocal fremitus and resonance increased. Coarse râles anteriorly and posteriorly on the right side.	Pulmonary tuberculosis.	Cough is looser, less frequent, and general condition better.
2	Mrs. M. S.	25	Crepitant and subcrepitant râles all over chest; dulness and prolonged expiration right lung.	Pulmonary tuberculosis.	Improved; cough looser.
3	H. H.....	21	Dulness over right apex; harsh, moist râles; prolonged expiration; history of pulmonary hemorrhages.	Pulmonary tuberculosis.	No improvement.
4	Thos. W..	34	Dulness, prolonged expiration, increased vocal fremitus. There is present also chronic rhinitis, and evidence of tubercular involvement of the larynx.	Tubercular laryngitis.	No improvement.
5	J. S. S....	34	Cavities in both lungs and general signs of phthisis.	Pulmonary tuberculosis.	Better.
6	Peter T...	34	Bronchial breathing and impaired resonance. Marked dulness posteriorly over both lungs.	Pulmonary tuberculosis.	No better.
7	J. T.....	29	Consolidation both apices; fine, moist râles.	Pulmonary tuberculosis.	Better.
8	J. H.....	48	"Cracked-pot" sound over the clavicular region of both lungs; prolonged expiration and general dulness over left lung.	Pulmonary tuberculosis.	Feels weaker.
9	J. G.....	39	Dulness over right apex; increased vocal fremitus; harsh breath sounds; prolonged expiration.	Pulmonary tuberculosis.	Much better; cough looser.
10	Mrs. A. P.	36	Dulness over left apex; harsh breathing; prolonged expiration; numerous sonorous and sibilant râles; right apex slightly impaired.	Pulmonary tuberculosis.	Improved; cough much looser; no longer vomits from excessive coughing.
11	Mrs. M. F.	38	Dulness over left apex; harsh breathing; prolonged expiration.	Pulmonary tuberculosis.	Improved.
12	G.....	33	Dulness over left apex, extending to third interspace; coarse and fine râles; marked emaciation.	Pulmonary tuberculosis.	Improved.
13	M. S.....	54	Impairment over both apices; harsh breathing and prolonged expiration.	Pulmonary tuberculosis.	Markedly better.
14	Ed. R....	27	Right lung consolidated; few coarse râles.	Pulmonary tuberculosis.	Improved.
15	J. P.....	24	Dulness over both apices; harsh breathing and prolonged expiration.	Pulmonary tuberculosis.	Improved.
16	H. S.....	40	Vomica at right apex; dulness at left apex.	Pulmonary tuberculosis.	Cough easier and general condition better.
17	T. S.....	28	Bronchial breathing; bloody expectoration and a loss of 25 pounds.	Pulmonary tuberculosis.	Cough looser and general condition better.
18	M. S.....	30	Left inframammary region harsh breathing; on right side amphoric breathing, and posteriorly markedly prolonged expiration.	Pulmonary tuberculosis.	Better.
19	K. H.....	24	Dulness, crepitant and subcrepitant râles; prolonged expiration.	Pulmonary tuberculosis.	Much improved.
20	I. S.....	28	Dulness and harsh breathing posteriorly over base left lung.	Pulmonary tuberculosis.	Feels stronger and cough easier.
21	K. B.....	39	Impairment left lung.	Pulmonary tuberculosis.	Better.
22	P. O.....	40	Both apices impaired; prolonged expiration.	Pulmonary tuberculosis.	Improved.
23	S. R.....	51	Impaired resonance; prolonged expiration.	Pulmonary tuberculosis.	Improved.
24	B. M.....	40	Dulness and harsh breathing over left lung; prolonged expiration.	Pulmonary tuberculosis.	Improved.

Note.—Tubercle bacilli were present in all cases.

plaint was made by any of the patients on account of the taste. The only objection to benzosol (if this be an objection) is the fact that it is more expensive than creosote, and this in hospital practice must be taken into consideration. In two cases of tubercular peritonitis no result was obtained by the prolonged use of benzosol.

The cases most benefited by benzosol were those in which, besides the pulmonary lesion, there were gastrointestinal symptoms. The exhaustive diarrhea of phthisis was usually promptly relieved by its use.

In a few cases of simple acute intestinal catarrh benzosol proved very effective, especially in the summer diarrheas of children of bacterial origin, where it became necessary to prevent fermentation.

CAMPHORIC ACID FOR NIGHT SWEATS.

By H. R. Coston, M.D.,
Fayetteville, Tenn.

The night sweats which accompany or follow many diseases, and especially tuberculosis, are so exhausting to the patient and often so resistant to all forms of treatment that any remedy which will give relief should be brought prominently to the notice of the profession.

Of the many remedies which I have tried camphoric acid gives the best results. I will relate briefly a few cases:

Case I.—J. M. W., aged fifty-two, suffering from chronic pulmonary tuberculosis, had very severe and exhausting sweating, beginning as soon as he went to sleep, and from which he would awaken drenched with sweat and almost collapsed. I gave him half a drachm of camphoric acid in half a glassful of sweet milk one hour before bedtime. That night he had no sweat; and strange to say has had none since, although more than a year has elapsed.

Case II.—J. B. R., aged twenty-five. Following an attack of acute rheumatism he had night sweats so badly that they began to tell severely on the system. A single dose of thirty grains of camphoric acid stopped them for a week, when the dose had to be repeated.

Case III.—James McK., aged twenty-four. Acute pulmonary phthisis; last stage. His mother reported that he was drenched in perspiration every time he went to sleep. Camphoric acid in half-drachm doses controlled this until his death, giving much relief.

I have used the remedy in many other cases and always with the very best results. After the defervescence of fever in typhoid cases, when the nervous centers are in so debilitated a condition that they do not properly innervate the body during sleep, the patient loses more from the profuse perspiration than he gains by the sleep. In these cases a twenty- or thirty-grain dose of camphoric acid will act so well that no sweating will occur and the patient will awake refreshed rather than exhausted.

It is not a remedy whose beneficial effects last only a few hours, for as a rule I have not had to give the second dose for several days and do not remember *ever* to have had to repeat it on the same night.

The remedy should be given an hour before the sweating is expected to begin. The dose which I usually give is half a drachm, but this may be increased or repeated if need be. It is best given dry on the tongue and washed down with half a glassful of water or sweet milk. It does not dissolve in water, and the alcoholic solution is so intensely bitter that I never use it, as very few patients can tolerate it.

THE RELATION OF EARLY DIAGNOSIS BY MEANS OF THE ROENTGEN RAY TO THE RESULTS OF NEPHROLITHOTOMY.

By Charles Lester Leonard, M.D.,
Skiagrapher to the University Hospital; Assistant Instructor in Clinical Surgery, Philadelphia.

The difficulties met with in differentiating between calculous nephritis and other renal disorders render it in some cases utterly impossible to establish a positive diagnosis by ordinary means. That this is recognized by eminent authorities is shown by the frequency with which they resort to exploratory operations. They have most certainly rendered inestimable service, and we are indebted to these operations for a clearer understanding of many of the pathological conditions that involve the kidney. If, however, they are imperfectly performed they may be very misleading, as a stone overlooked would tend to render the diagnosis even more obscure.

However valuable this mode of examination may be in cases where renal calculi are suspected, there are many cases in which the symptoms are not sufficiently developed to warrant its employment before the calculus has reached a large size and produced irreparable injury. Smaller calculi are capable of disorganizing, disintegrating, and destroying the renal tissues long before they make their presence known through definite symptoms.

How many cases go undiagnosticated it is impossible to determine, but it is certain that numerous patients die from impacted calculi and subsequent anuria, while post-mortem examinations have frequently demonstrated the total destruction of one kidney as the unsuspected result of renal lithiasis. These patients have, at some time, had symptoms that would suggest the possibility of stone, yet they have not been marked enough to make it probable or operation justifiable,

while the pathological process present has been sufficiently severe to destroy the entire kidney. Such cases illustrate the difficulties in the way of diagnosis, and point to a deficiency in diagnostic methods.

Under these conditions it is little wonder that surgeons looked to the Roentgen ray with the hope that it would aid in solving this problem. Early experiments in this direction showed, however, that although it might be possible to detect the denser calculi through the lumbar region, the light that would penetrate that area would also penetrate the less opaque forms. Thus it was that the presence of a shadow of the calculus in a negative proved it to be present, while the contrary was not true, for one of the less opaque forms might have been penetrated though present.

To solve the problem it was necessary to produce rays capable of passing through the lumbar region and differentiating between its lesser densities. This has been accomplished, and an improved technique and apparatus make it possible to differentiate between the density of the kidney itself and the surrounding structures, so that we are certain that in a negative in which this amount of detail is present no calculus of any variety can escape detection.

The technical difficulties surrounding the production of such negatives were very great, for in each case the density of the individual patient must be correctly judged, and the length of exposure and quality of x-ray employed so adjusted that the light, while penetrating the lumbar region, will differentiate between its lesser densities. Overexposure or too powerful penetration will obliterate all structures, while underexposure or too "soft" an x-ray will fail to penetrate the region sufficiently. The length of the exposure varies from five to twenty minutes, according to the physique of the patient, the condition of the tube, and the quality of the current.

A series of cases that have stood the clinical test of operation have demonstrated the mathematical accuracy and correctness of this method of diagnosis. Its effect upon operation is threefold: it renders operation possible in the early stages of the disease, when recovery is rapid and impairment of function slight; it makes the operation complete, and hence increases its efficiency and value; it prevents operation without full knowledge of the condition of the other kidney as regards calculi.

The great value of this method of diagnosis is seen in cases where the symptoms are so indefinite that it is impossible to differentiate between disease of the kidney and that of some neighboring organ. This is especially true of disease of the right kidney, as its proximity to the hepatic and appendiceal areas renders the diagnosis more difficult where the symptoms are masked or but few symptoms are present. The value is still greater in making the diagnosis between calculous nephritis and other inflammatory conditions of the kidney. They are so similar in their symptomatology that it often requires the whole group of symptoms of any one condition to make the differential diagnosis positive. It is, however, true of calculous disease that it may exist for a long time before enough symptoms show themselves to make an absolute diagnosis possible. In some cases calculi attain large proportions, and, as has been stated, post-mortem examinations have frequently shown that calculi have produced the total destruction of a kidney without their presence having been more than suspected.

I have seen operation demonstrate the correctness of the Roentgen ray diagnosis in a case where a history of indefinite lumbar pain and a slight amount of albumen and pus were the only symptoms that led to the suspicion that a small calculus might be present. The calculus removed was very small, but it had caused slight disability for a number of years and had wrought considerable injury to the renal tissues. The effect of such an early diagnosis was seen in the relief from pain and a depressing pathological condition, while the removal of the cause, before the function of the organ had been materially injured and while its reactive and recuperative powers were sufficiently intact, insured a rapid and complete recovery.

How fallacious an exploratory nephrotomy may be can be readily judged from the impossibility of detecting even a moderately large stone in a kidney, even when it is upon the post-mortem table. It is admittedly impossible to determine the presence or absence of renal calculi by needling, and exploratory incision into the substance of the kidney itself is considered by some surgeons to be unjustifiable; while it has not infrequently happened that a calculus has escaped detection even after the finger has been introduced into the pelvis of the kidney. This is especially liable to happen in cases where there are multiple calculi, the surgeon being readily

content with the removal of one large calculus.

The Roentgen ray is very valuable not only in definitely deciding that a calculus is present, but also in determining whether one or more are present and what their relative location is. In three of my cases multiple calculi have been found. In any one of them the surgeon would have been content with the removal of one calculus, as the others were in one case encysted, and in another situated in a deep diverticulum of the pelvis, where persistent search, born of the knowledge that they were there, was required to find them. If they had not been shown by the skiagraph the result of the nephrolithotomy would have been incomplete, the remaining calculi continuing the destructive process; and a supposedly complete operation would only have served to render the condition more obscure. The value of the completeness of this form of diagnosis cannot be overestimated. It adds mathematical accuracy and precision, even where the symptoms of renal calculus are almost self-evident, making it possible to remove the most minute calculi and to perform a complete operation.

The nature of renal lithiasis makes it impossible, no matter how complete the symptoms, to determine by any other method of diagnosis whether one or more calculi are present, or whether one or both kidneys are involved.

Late writers have suggested that double exploratory nephrotomy be performed in order to determine the condition of both kidneys. This suggestion shows that this condition is not only possible but probable in many instances, and it has been frequently demonstrated in operating and in post-mortem examinations. The Roentgen ray is a ready solution of this problem, and all cases of suspected calculus should have this complete method of examination before the risks of operation are undertaken. I have seen the demonstration of this application of the Roentgen ray.

To summarize:

1. Recent improvements in apparatus and technique have made it possible to penetrate the lumbar region and yet differentiate between the lesser densities.

2. Sufficient detail can be obtained in the negatives to render it absolutely certain that no calculus can escape detection.

3. The absolute diagnosis of the presence or absence of calculi can therefore be made.

4. This method of diagnosis renders the detection of calculi possible even where the symptoms are so masked or wanting as to render it impossible in any other way.

5. The mathematical accuracy of the diagnosis renders the detection of multiple calculi possible and their removal certain. It therefore insures a complete operation.

6. It is the only method of examination that can positively determine before operation whether only one or both kidneys are involved.

7. The employment of this method of diagnosis should make intervention at an early period possible, and tend to better the results obtained by nephrolithotomy.

APOCYNUM CANNABINUM.

By G. H. Mayhugh, M.D.,
Westerville, Ohio.

The numerous letters appearing in the Therapeutic Gazette during the year 1898, and the regular communications found therein, regarding *Apocynum cannabinum*, and the incidental reference made to *Apocynum androsæmifolium*, have been read with more than ordinary interest by me; and while I am not unmindful that the discussion of the matter has been unusually full and extended, the desire is irresistible to make a few further observations upon the subject. In the first place, it is proper that notice be taken of some statements in the very elaborate and, it is proper to add, valuable paper, judging from a clinical standpoint, appearing in the November issue, from the pen of Dr. T. S. Dabney. He states that *Apocynum cannabinum* is "a remedy scarcely mentioned in works on therapeutics and materia medica," and says: "Bartholow, Waring, Ringer, Hare, and H. C. Wood make no mention in their works on materia medica of this remedy." The Doctor's last statement is no doubt strictly true, and reference is here made to it only to deplore the fact. Scholastic and creedal exclusiveness should have no place in science anywhere, much less in that branch which is of such vital importance to sick and suffering humanity, and to nothing else than that can the omission, not only of this agent but of many other indigenous remedies equally valuable and potent for healing, be attributed. It is greatly and sincerely to be hoped that future editions of these otherwise very valuable works will enhance their usefulness by adding several well known and valuable native drugs.

The reason Dr. Dabney assigns for the "expurgation of apocynum practically from the materia medica," as he puts it, is certainly not because, as he says, a reliable preparation of the drug was not obtainable—indeed, easily accessible—for at least two of the largest and most reliable drug houses in the West have for very many years had on the market a thoroughly representative product of this drug. A desire to avoid tincturing this communication with commercialism forbids the mention of these firms by name. These preparations have had a large use at the hands of hundreds of physicians.

Now, as to Dr. Dabney's first statement that it is "a remedy scarcely mentioned in works on materia medica and therapeutics," he is certainly likewise in error, and the suggestion is here ventured that the Doctor's reading has been, like the works of the authors whom he so justly criticizes, too narrow in its scope, and has not taken in the works of various "irregular" schools of medicine. The Thompsonian Materia Medica (in 1841 in its thirteenth edition); The Physio-Medical Dispensatory; King's American Dispensatory; The Physio-Medical Materia Medica; Coe's Concentrated Organic Medicines; Locke's Materia Medica and Therapeutics; Scudder's Specific Medicine—all these describe fully *Apocynum cannabinum*, and point out its indications and uses.

Of course, Dr. Dabney's remark is strictly true when applied to the works of "regular" medical authors, but though a "regular" graduate myself, love for the truths of a broad and liberal science of medicine leads me to recognize and make use of the fact that there have been, and are, many earnest workers in the fields of materia medica, outside of the ranks of "regular" medicine, who have written many valuable and scholarly works worthy of careful study by all medical men.

Dr. Dabney deserves great credit for his effort to get his colaborers to give deserved attention to this drug, just as there is, likewise, praise due the late Dr. Black, of Newark, Ohio, in discovering (?), some fifteen years ago, that *Euonymus atropurpureus* was a valuable agent, and urging its use. Dr. Phares, of Newtonia, Miss., in 1866, made a like revelation (?) regarding *Viburnum prunifolium*, and his efforts deserve commendation. The hope is indulged that Dr. Dabney will fully succeed in his efforts to induce the authors of "regular" medicine to give this remedy its deserved recognition.

In the second place, permit a few words as to the preparation of this drug which is most reliable. I have used with equally good results both the "specific" and "normal" tincture, and in all those cases where there were the indications for the drug, namely, a weakness of the vessel walls, allowing transudation into cellular tissue, or a weak heart and low blood-pressure, it has uniformly given excellent results. In the hands of many careful clinicians the resinoid, apocynin, gives results just as good. In a clinical lecture delivered before his class in the Cincinnati College of Medicine and Surgery, and reported in the June, 1898, issue of the *Alkaloidal Clinic*, Prof. John M. Shaller describes his use of apocynin in three cases, in which it gave rapid relief. The first was that of a young man, aged twenty-five years, who had had albuminuria for over two years: "There were painful and marked pulsations in the veins of the neck, no pulse at wrist, extensive edema, dilatation of right heart, with inharmonious action of the valves, embarrassed respiration, and highly albuminous urine." Apocynin, in doses ranging from one-sixth grain every two hours to one-third grain as often (fourth day), was given, the only other agent given being strychnine arsenate—one-fortieth grain three times a day. All abnormal symptoms rapidly disappeared. His second case was one of edema of feet and legs, the result of a weak heart and low blood-pressure, in a patient aged seventy-six. Under apocynin the patient got well rapidly. The third case was one of mitral regurgitation with edema of feet and legs, in a man of fifty. Two one-twelfth grain granules of apocynin were given every two hours and relieved the edema within a week. Apocynin has an advantage over digitalis in these cases especially, in that it has a cathartic effect also, and catharsis is nearly always desirable. It never disturbs the stomach, if given in small doses, as digitalis does so often, but is really tonic thereto. Dr. Shaller advises the use of at least one-fourth grain to begin with, given every two hours, gradually increased after three days until effect.

Certainly apocynin, given in the conditions pointed out above, has an *established* reputation and is as surely a specific for the indicated conditions as is quinine for malaria; and the extended discussion of this agent in these columns cannot but be of very great value to the large body of medical men who have not heretofore used this potent drug.

The Therapeutic Gazette

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Leading Articles.

TREATMENT OF HEMOPTYSIS.

There are certain conditions met with by the physician in active practice which he must admit as being very distinctly incurable —at least so far as any medical or surgical interference on his part is concerned. There are few of these which are more beyond his control than the condition which is known as pulmonary hemorrhage, which like all concealed hemorrhages, in the sense that we cannot get to the bleeding point, is peculiarly dangerous to the patient who is suffering from it. As a matter of fact it is not a reflection upon the ability of the medical man that this is the case, yet there are few of us that have met with these patients who have not felt a necessity for active interference in their behalf. At the present time the treatment which is most frequently carried out is probably the administration of ergot internally and the use of morphine and atropine hypodermically, while many physicians also administer tannic acid, gallic acid, alum, and even common salt, in the hope that they may be able to aid in the formation of a clot which will plug the bleeding vessel.

The mere taking of salt in the mouth is probably without any influence whatever upon the bleeding, and only when a sufficient quantity of it is swallowed to produce nausea, and therefore a diminution in circulatory activity, can it exercise even an indirect influence over the condition which we are attempting to combat. Tannic acid is so slowly absorbed, and has such feeble counteracting influence upon blood-vessels, that it probably rarely if ever does good when given by the mouth, and alum, aside from the nausea which it may produce, is equally useless.

Much interest centers around the use of ergot under these circumstances, and there seems to be little doubt that its general employment is productive of no good. In the first place, ergot, by its influence upon the vasomotor system, causes a rise in arterial pressure, which, if the hemorrhage comes from an eroded artery, must necessarily increase the flow of blood; and further, it can only check hemorrhage when its influence is exerted upon the muscular coats of blood-vessels which supply the capillary network which is leaky. In other words, if the hemorrhage comes from a blood-vessel of any considerable caliber, ergot is not only useless but probably harmful, and can only do good when used to check oozing hemorrhages from capillary areas, from which it cuts off the blood by contracting their supplying blood-vessels.

What, then, are the measures which should be introduced by the physician who is called upon to treat these grave complications? The reply to this question depends to a certain extent upon the exact cause of the hemorrhage, for hemoptysis is not by any means invariably caused by pulmonary tuberculosis, although this disease may be its most frequent causative factor. If the hemorrhage takes place in a person advanced in years, with high arterial tension and atheromatous blood-vessels, it is our duty to determine whether the blood which is coughed up arises from engorged vessels, which are congested because the right side of the heart is too weak to pump blood through the lung. In such a case digitalis and similar remedies are of advantage, and the hemorrhage in such cases is usually small in quantity and perhaps only stains the sputum.

On the other hand, if associated with an atheromatous condition of the blood-vessels

we find a high arterial tension, then nitroglycerin may be the obvious remedy, since by decreasing tension it will tend to diminish the leakage of blood.

If the heart is hypertrophied it may be necessary to administer in addition small doses of aconite, while on the other hand, if it is feeble, the well known combination of digitalis and nitroglycerin may be needed. So, too, in cases of hemoptysis arising from valvular disease of the heart, it may be that the proper administration of cardiac medicaments will cause an arrest of the present hemorrhage and prevent future ones from occurring.

If the cause of the hemoptysis be tuberculosis of the lung, the proposition is quite different, and the treatment, it seems to us, must depend largely upon the general condition of the patient and the freedom with which the blood seems to be flowing. When the hemorrhage is free there seems to be little doubt that a hypodermic injection of morphine in a dose of a quarter of a grain is the best routine method of treatment, because it does something towards relieving the mental anxiety of the patient, and, what is more important, it checks the incessant cough and thereby permits the clot to form in the leaking vessel. On the other hand, it probably does raise arterial pressure to a slight extent. If the hemorrhage is so profuse as to produce collapse, it may be advisable to administer small doses of aconite frequently, until the arterial tension is lowered considerably, or to supplement it by frequent small doses of chloral, which will quiet the circulation, allay cough, and tend to produce sleep. The application of a small ice-bag over the part of the lung which is believed to be in difficulty has been recommended by many physicians, and by reflex influence may do good, if the blood is coming from the bronchial vessel which is supplied with nerves and muscular fibers; on the other hand, if the hemorrhage is from one of the pulmonary vessels it is hard to imagine how it can exert any influence, since these vessels are practically devoid of both nerves and muscular fibers. Curiously enough, Daremberg and Yeo have both asserted that the application of a small ice-bag to the perineum is efficacious in controlling pulmonary hemorrhage, probably by altering the circulation in the chest.

Our attention has been called to this matter once more by an article read before the Section of Medicine of the College of Physicians at Philadelphia by Dr. F. A. Packard, in which he took the attitude that ergot was inadmissible in most of these cases, and also by a paper read before the last meeting of the Association of American Physicians by McPhedran, of Toronto, in which, to use his own words, he "dealt with the fallacy of much that is popular in the treatment of this usually alarming condition, rather than afforded anything new in the manner of its treatment."

Finally, in conclusion, it is well to remember the notes which have been made in the THERAPEUTIC GAZETTE concerning the value of calcium chloride, given for the purpose of increasing the coagulability of the blood, and also those which have been made about the value of gelatin given subcutaneously for this purpose; nor should we forget the great value of subcutaneous or intravenous injections of normal salt solutions prepared according to the formula of Dr. Locke, of Harvard, and now on the market put up in concentrated sterile solutions amounting to one ounce each, which when added to a quart of pure water produce at once the artificial blood-serum.

RECOGNITION AND TREATMENT OF INFANTILE SCORBUTUS.

Thanks to the efforts of a number of American physicians, the fact has now become well recognized that scurvy is by no means an unknown condition in young children, and careful medical men are continually meeting with instances in which the disease appears, to the great surprise of careless physicians and to the parents, the latter being in most instances well to do and providing their children with expensive artificial foods.

That the condition is one which often is not diagnosed correctly is proved by the fact that these children often continue on the same diet for a long time after they are known to be ailing, and perhaps there is some excuse for the failure to make a correct diagnosis when the symptoms are somewhat aberrant. On the other hand, we not infrequently see cases in which the disease is so manifestly present that it is hard to understand how it could be overlooked, and we have recently seen several cases which have impressed this fact upon us.

In the *Journal des Praticiens* of November 26, 1898, Comby reports a case of this character in an infant of thirteen months who

was supposed to be suffering from acute articular rheumatism, as there was swelling of the lower extremities and painful pseudo-paralysis. The child was pallid, lacking in appetite, and exceedingly feeble; the gums were reddened and tumefied and bled easily. The milk that the child had received had been sterilized at high temperature. Because the child was thought to be suffering from rheumatism it had been receiving salicylate of sodium, but this was immediately replaced by the administration of proper quantities of milk, orange juice, and a puree made of potato. Within eight days the condition of the child was greatly ameliorated; the hemorrhagic gums and the pain in the limbs had disappeared; there was a marked diminution in the periosteal hematoma on the femurs; and eight days later Comby considered that the patient was absolutely cured.

In one of the cases which we have recently seen a dentist had been called again and again to lance the gums because they were so swollen that they continually covered the teeth as rapidly as the teeth were cut. There was marked loss of power in the lower extremities, a condition of laryngeal spasm, and general cachexia.

In another case there had been repeated attacks of violent laryngeal spasm, and the child was said to have cried continually night and day for two weeks, nothing quieting it, and all efforts to quiet it by walking with it or rocking it simply seemed to increase the loudness of the cries, which was natural, considering that there was present that peculiar tenderness of the joints and vertebræ which is so common in this affection. In both of these cases the proper regulation of the diet and the use of small doses of phosphate of sodium to regulate the bowels and to provide bone salts, and the use of proper broths in which bones had been boiled, resulted in remarkably speedy recovery of the infant.

THE ABUSE OF QUININE.

We have at various times in the editorial pages of the THERAPEUTIC GAZETTE, and in several original articles, called attention to what we consider the modern abuse of the drug quinine, for at the present time it is a remedy which is used in almost as many conditions and in as excessive doses as was iron some few years ago. Not only do we believe that certain conditions may exist in the course of malarial disease in which quinine is not only useless but harmful, as we have pointed out recently in an article in the *Medical Record* of January 7, but also that it is used in excess in many other conditions which are in no way associated with malarial infection particularly for the purpose of breaking up acute inflammations due to exposure to cold and in the treatment of influenza.

Our attention has once more been called to this question by a letter sent by Dr. Dolloff, of Beverly, Mass., to the *Philadelphia Medical Journal*, in which he speaks of what he calls the "quinine fad" which has taken hold of the profession, and then proceeds to point out that in his opinion the drug is frequently abused, and to state that he thinks that some of the circulatory depression and nervous symptoms manifested by patients who are suffering from influenza or convalescing from this disease are in reality due more to the quinine than to the infection. Our own view is that he is quite correct in this theory. While it is true that small doses—two or three grains two or three times a day—exercise an important influence upon the general system and apparently increase nervous tone, it is nevertheless a fact that larger doses, such as ten or twenty grains three times a day, go further than this, and like most drugs when given in excess produce depression and decrease vitality. Twenty grains of quinine in the average individual exercises a distinct depressing influence upon the circulatory system, and aside from its harmful influence upon the gastrointestinal tract, we believe that these doses also exert some effect upon the blood and nervous system.

When the day arrives in which the profession recognizes that a drug which is a specific in some conditions is not of value in all, much benefit will be the property of our patients, and the routine use of quinine in almost every ailment with which we come in contact is without doubt as bad therapeutics as its fearless administration is good therapeutics in the presence of the active malarial parasite.

THE TREATMENT OF VESICAL OBSTRUCTION INCIDENT TO ENLARGED PROSTATE BY GALVANOCAUTERY INCISIONS.

It was about twenty-five years ago that Bottini proposed to overcome the obstruction due to a urethral or vesical enlargement of the prostate by forming an artificial channel through the obstructing mass by means of a knife heated to the cauterant point by elec-

tricity. This method was received with scant favor, since it required for its execution an expensive and complicated instrument, and in the preantiseptic period of genito-urinary surgery was apparently attended by grave dangers of sepsis and hemorrhage. The majority of writers of that day, and up to within a very recent period, have either neglected to mention this operation, which is known as Bottini's, or have condemned it without qualification. It was probably the communication of Freudenberg which attracted general attention to the possibilities of good inherent in a division of the obstructing part of the prostate by the galvanocautery knife.

Within the last year numerous contributions from different authors have appeared on this subject, and though it is customary for the first reports as to the success of a new operation or a revived old one to be optimistic and hence unreliable, there seems good reason to believe that the modified method now practiced is a valuable addition to the list of operations applicable to the prostate, and is one which from its simplicity, its apparent low mortality, the comparative ease of its performance, and the absence of external cutting or disfigurement of any kind, is likely to save many lives, since patients will submit to this means of treatment at an early stage of bladder involvement before irremediable changes have occurred.

Some reasons for the favor with which Bottini's modified operation is now received are:

1. The efficiency and comparatively moderate cost of the appliance.

2. The lessened danger of infection because of a more thorough knowledge of urethral antiseptics.

3. The modification of the operation in such wise that in place of forming an artificial groove or tunnel, deep cautery cuts are made in various directions, causing the prostate to shrink and thus enlarging the natural opening.

Abstracts, giving in detail the results of this operation, will be found in the present number of the GAZETTE. Meyer's article is particularly important, since he is an accurate observer, ranks with the first genito-urinary surgeons, is thoroughly skilled in operative technique, and is particularly fitted to deduce just conclusions as to the value of a method. He states that a tabulation of 164 cases shows that 80 were cured, 44 were improved, 26 were not improved, and 14 died. Meyer holds that the risk of this operation is less in small, comparatively avascular prostates associated with normal bladders and upper urinary tracts. As a result of his operations he is ready to advise every patient with non-complicated prostatic enlargement to submit to the galvanocautery treatment as soon as resort to continued self-catheterization has become imperative.

EXTENSION IN THE TREATMENT OF FRACTURES OF THE LOWER EXTREMITY.

It is a commonly accepted belief in the profession that simple fractures of the shaft of either the femur or the tibia and fibula are comparatively trifling injuries, which are attended at most by a confinement of from five to eight weeks in bed, followed by a similar interval of slight disability, and that union takes place with a shortening rarely greater than three-quarters of an inch —often much less than this. It is probable that the great majority of fractured femurs are treated by Buck's extension or some modification of it—*i.e.*, weights secured to the limb by plaster supplemented by splints—while fractures below the knee are very commonly treated in the fracture box and without extension.

The vast majority of fracture cases are those which apply to hospitals for treatment; hence the subsequent course cannot be followed. A very brief study of old fractures of the lower extremity will, however, convince whoever takes the trouble to make such an investigation that disability following fracture of the femur commonly lasts six months and often persists for a year, and is occasionally lifelong; that fractures below the knee cripple for at least one-half this time; and that the shortening in cases of femoral fracture is rarely less than one inch, and frequently varies between one and one-half and two and one-half inches.

It is because of such unsatisfactory results that many surgeons have supplemented the extension treatment by the application of the plaster-of-Paris bandage during complete anesthesia, while the fracture is thoroughly reduced by traction and manipulation. This method is open to the objection that the seat of fracture cannot be subject to repeated examination, and that hence deformity can take place beneath the plaster dressing when the latter becomes loose from the atrophy, which always follows severe bone traumatism.

A contribution of Bardenheuer (*Centralblatt für Chirurgie*, November, 1898) is of interest in this relation, since it points out that the shortening is often due to the use of too little extension. Usually eight to ten pounds is employed in fractures of the femur. Bardenheuer used from fifteen to thirty pounds, always running his plaster strips above the seat of fracture—as high as the trochanter when the femur is broken; to the middle third of the thigh for fractures below the knee. He states that his results were admirable, and that of 2000 cases treated there was not one instance of non-union.

This suggestion as to the added amount of traction which can be borne with safety is an important one; supplemented by examination with the fluoroscope, and by repeated careful measurements, it should enable the surgeon to obtain much better functional results than have heretofore been the rule. The increased length of the extension strips, and the selection of a stout resin plaster (probably the best is that known as doeskin), will enable a much greater amount of traction to be employed than if the rubber plaster is used. The latter nearly always irritates the skin, often to such an extent that it has to be removed.

Reports on Therapeutic Progress

THE INFLUENCE OF DRUGS UPON GASTRIC CHEMICAL PROCESSES.

Under this heading we have to discuss three main points, we are told by HERSCHELL in the *British Medical Journal* of October 29, 1898:

1. The action of drugs in diminishing the secretion of hydrochloric acid.
2. In promoting the secretion of gastric juice.
3. In arresting fermentation in the stomach.

Since the discovery of hyperchlorhydria it has been one of the most difficult problems to find some drug which would diminish secretion of hydrochloric acid in the stomach. In some cases, which we now know depend upon absolute increase in the amount of secreting glandular tissue, this must be obviously impossible, and we must rely upon a bland unirritating diet. In the neurotic group of cases, however, it should be theoretically possible to effect something, and one naturally thinks of belladonna. This drug, and its alkaloid atropine, have been extensively tried by many workers in this field of medicine, but with very varying results. Herschell has notes of several cases of his own in which they appeared to diminish the acidity of the stomach contents, but with the drawback that the unpleasant specific effects of atropine were experienced by the patient. He has also tried chloral and morphine without success. Latterly he has been administering preparations of tannin with hopeful results, and quite recently good results are being obtained by lavage of the stomach. The lavage is carried out with a solution of carbonate of sodium, then with a one-per-cent suspension of magnesia usta, and finally with a half-per-cent solution of tannin. Hemmeter, who has made an extensive trial of this method, uses sometimes, instead of the tannin, a suspension of bismuth subnitrate.

In the opposite conditions of hypochlorhydria and achylia we have to try and increase the amount of hydrochloric acid secreted by the stomach walls, and curiously enough, the agent which appears to give the best result is this acid itself, and it may be safely given in far larger doses than are usually prescribed. When one bears in mind that the quantity of acid contained in the gastric juice during the height of the digestion is 0.2 per cent, it will be apparent that a drachm or so of the dilute acid administered by the mouth will be quite harmless. Herschell points out that the absence of free acid in the stomach contents does not invariably prove that the hydrochloric acid is in defect. The free acid which is present in the stomach is merely the surplus remaining after all the albuminoid articles of diet have satisfied themselves, and it is quite possible, where the demand and supply are pretty evenly balanced, for digestion to be proceeding tolerably well in the stomach without there being any free acid discoverable by Congo red or other tests. One is therefore not justified in diagnosing absence of hydrochloric acid unless the combined acids have also been estimated. This can be easily done by subtracting the acidity found by alizarin from that demonstrated by phenolphthallin. The former is the total acidity with the exception of the combined acid, and the latter the total acidity. The amount of free hydrochloric acid is easily estimated by dymethyl-amido-azo-benzol.

The other agents which appear to have a distinct action upon the secretion of gastric juice are strychnine, the vegetable bitters, and the salts of orexin, but it is impossible to say at present how much of their effects is due to their local action on the mucous membrane of the stomach, and how much to a

stimulation of a hypothetical hunger center in the medulla.

The old idea that the secretion of acid gastric juice could be increased by the administration of an alkali before a meal, we may take as an exploded superstition.

Of course, in cases where the defect of the gastric secretion is due to an inflammatory disease of the stomach, we must cure this before we can hope to restore it; and we shall probably meet with a measure of success unless the gastritis is of so long standing that the majority of the gastric glands have undergone obliteration.

The search for an antiseptic agent which will prevent abnormal fermentations in the stomach is futile, as in most cases we can produce better results by removing the conditions which render it possible.

The germicide provided by Nature is the hydrochloric acid of the gastric juice, and although it will not destroy all bacteria in the stomach it will sufficiently inhibit their action to allow the digestive processes to proceed in a normal manner.

A further safeguard against fermentation in the stomach is the fact that bacteria require a certain time in which to act, and that before this has arrived the stomach usually empties itself into the duodenum. The causes, then, of gastric fermentation are: (1) deficiency of hydrochloric acid; (2) defect in the motor power or peristalsis of the stomach.

The rule of practice which Herschell adopts is: Whenever by the exhibition of hydrochloric acid and regulation of the diet he is unable to control abnormal fermentation in the stomach, he washes it out sufficiently often to keep the patient in comfort. He is convinced that we cannot administer sufficient quantities of any known antiseptic to render the stomach sterile without injury to the patient.

THE TREATMENT OF DYSPEPSIA.

CALWELL, in the *British Medical Journal* of October 29, 1898, tells us that he thinks that there are a few clinical points in regard to the treatment of two forms of dyspepsia that, although mentioned, are not sufficiently insisted on. First, as regards rest in the dyspepsia of the overworked. As physician to a large nurses' home and training school with about one hundred inmates he had had particularly good opportunities of observing this phenomenon. A form of painful dyspepsia, due to the usual combination of gastric insufficiency and gastric irritation, was fairly common. Formerly he treated this with change of diet—the cooked milk diet and some gastric sedatives and alkalies—but he allowed the patient to continue duty. The results were unsatisfactory.

The pathology of such cases is simple, although far-reaching. A person is overworked; there is more or less nervous exhaustion; and owing to the habit of eating too quickly, to the prevalence of bad teeth, to the rushing back to work without the requisite rest, and to the rather frequent exhibition of the great digestion delayer, tea, the stomach generally feels this exhaustion earliest. If this be the correct pathology the treatment is clear. We must give general rest for the whole system, allowing an accumulation of nervous energy in particular, but also in the various organs of the body, and at the same time local rest for the stomach. Owing to the means at his disposal and the careful watch that could be kept over the patients, Calwell was able to follow the effect of absolute rest with general treatment with a precision one could not secure in private practice or among the out-patients in hospital; such cases refuse to go to bed or to come into hospital.

The treatment can be summed up in a few sentences. Absolute rest of body and mind in bed for from two to ten days; a carefully regulated diet, beginning with a small teacupful of cooked diluted milk every two hours, gradually increasing to a fairly full diet; and, lastly, some mild alkaline sedative before food. The above form of dyspepsia is exceedingly common both in private practice and amongst the out-patients of our hospitals. His desire is to emphasize the necessity of absolute rest, thus treating the incipient state of bankruptcy of the general strength, more especially of the nervous system. The results are convincing.

Calwell next speaks of the second form of dyspepsia. Suppose such a condition as the above is allowed to linger on; suppose one is content to prescribe medicines and modify diets, but without a cure, as not infrequently happens. The condition becomes one of irritation due to organic acids, fermentation, with, as before, insufficiency. In very advanced and chronic forms, where the affection has gone so far as to lead to dilatation from weakening of the coats of the organ, lavage is the remedy that appeals to our ideas of the pathology. But what about the milder forms—the intermediate stages where a diagnosis of dilatation, of chronic ulcer, of chronic catarrh, is made by each succeeding

medical man in turn, as he is consulted? The treatment of such a condition in the early stages is as follows: Rest is important, but the absolute rest demanded in the former instance is not so here; on the other hand, it must be of much longer duration and carried out under the hygienic conditions of rest in the open air, at the seaside or in the country, not in bed. Secondly, carefully regulated diet under the usual principles. And lastly, modified lavage, as follows: Thrice daily from one to two hours after meals, according to the onset of the pain, swelling, and general uneasy symptoms, a warm alkaline draught; this neutralizes the organic acids, it stimulates the stomach to contract, and as it dilutes the contents they are passed with greater ease into the intestine; we endeavor to stop further work on the part of the stomach as regards that meal, and so give it rest: and we send the food where it should go, into the intestine to complete its digestion. It is a mistake to try and force the weakened stomach to go on digesting with pepsin: give it rest, as you would a joint still swollen, painful, and stiff from inflammation. The form of warm alkaline draught employed is one of bismuth, soda, and heavy magnesia.

The two points Calwell urges in connection with many forms of dyspepsia are: (1) The necessity of absolute bodily and mental rest; (2) the necessity of not trying to force the stomach to continue digestion when it is repeatedly telling us that it cannot, but to devise means of removing the contents after a certain period without actually passing the tube.

In discussing this subject ECCLES said in regard to megastria it certainly seemed that the less serious form of ectasia, due to atony and atrophy not going on to degeneration of the mucous membrane, nor ending in general fibrosis, was greatly on the increase, or at any rate he had seen a greater number of cases in the last three years than in the same length of time before. He did not propose to burden them with statistics which were not sufficiently large to establish facts.

In over 500 cases with marked dyspeptic symptoms occurring in the past ten years in his practice there had been 128 cases of dilatation of the stomach, of which forty-two had been treated in the last three years. The majority of cases were spoken of as "chronic dyspepsia" or "atonic dyspepsia;" and alkalies, acids, bitters, tonics of all kinds, and the inevitable changes of air had been often prescribed with the want of success such proceedings usually entail. He thought that the sufferers from this comparatively mild form of stomach enlargement drifted on without improvement as a rule for months, or even for years, until their symptoms, becoming somewhat conspicuous, attracted attention, when sometimes success followed appropriate treatment.

Examination of the stomach contents after a test breakfast revealed deficiency of free hydrochloric acid, and the salol test was greatly delayed. Still some power of contraction continued to exist, and the patient appeared to suffer rather from general disturbance of nutrition than from the more severe local effects of true megastria when associated with malignant or non-malignant pyloric obstruction, fibroid degeneration, or adhesions. It is a great pity that so many sufferers from chronic or repeated attacks of gastritis drift from bad to worse, until wide-spread destruction of the mucous coat leaves little hope of recovery by any means. When, however, atony has not developed into atrophy, the disease can be arrested by a plan of treatment which is preeminently rational and successful. The patients should be rested in bed, fed at first on pulped proteid foods and milk; the abdominal walls should be manipulated three or four times in the twenty-four hours; and the contents of the stomach should if possible be mechanically expelled into the duodenum three-quarters of an hour after the principal meals of the day. The patients should be encouraged to assume a tilted-up position, with the buttocks on a higher level than the shoulders, as often as they can do so without undue fatigue.

In more than 100 cases this method, employed for periods varying from three to ten weeks, had proved successful in decreasing the size of the stomach, greatly improving the powers of assimilation, and increasing bodily weight and bulk. In this atonic dilatation of the stomach Eccles had frequently been able to add an average of five pounds a week to the weight of the patient under his care without the use of the stomach-tube, save only in the first few days to prepare the organ for more rapid absorption and evacuation of its contents. A similar plan of treatment had also been adopted in some forty cases of gastroptosis, of which twenty-seven uncomplicated by other forms of enteroptosis were published in the *West London Medical Journal* for July.

For conditions of true ectasia ventriculi

complicated by destructive processes of the stomach wall and obstruction of a character irremovable save by surgical means, it is worth while to see how improvement can be obtained by lavage, massage, dieting, and rest before surgical procedures are initiated, for at any rate unless the patient is in a very parlous state he might be rendered more fit to sustain the shock of abdominal section, even when gastroenterostomy apparently affords the only prospect of relief.

THE LOCAL USE OF THE AQUEOUS EXTRACT OF SUPRARENAL GLANDS OF THE SHEEP IN THE NOSE AND THROAT.

In the *New York Medical Journal* of December 24, 1898, SWAIN concludes a paper with the following words:

1. We have in the aqueous extract of suprarenal glands a powerful local vasoconstrictor agent and a contractor of erectile tissue, which it is safe to use in very considerable amounts without any dangerous or deleterious effects locally, or to the general constitution of the individual.

2. These local effects can be reproduced in the same individual apparently any number of times without entailing any vicious habit either to the tissue or to the individual.

3. The use of the extract seems to rather heighten the effects which may be expected from any given drug which may be locally used after it.

4. In acute congestions it has its widest application and greatest opportunity for good; but also in certain chronic conditions of hay-fever type, where edematous tissue seems prone to develop, it can be relied upon as one of the most helpful adjuvants which we have at command. The only difficulty seems to be in producing it in quantities and in preventing decomposition on standing, which objection will be probably easily overcome by laboratory experiments.

THE USE OF MORPHINE IN HEART DISEASE.

The *Boston Medical and Surgical Journal* of December 22, 1898, contains an interesting editorial on this topic, in the course of which it expresses the belief that opium still remains one of those drugs whose varied uses must be learned empirically from clinical observation rather than from any theoretical consideration of its *modus operandi*, or from any study of its physiological and toxicological effects in healthy men and animals. Its wide range of action, according to the dose and form of administration, makes it applicable to certain cardiac affections, especially such as are attended with dyspnea and pain. In many cases of angina pectoris, despite the undeniable advantages to be derived from nitroglycerin and nitrite of amyl, it must be the main reliance. By the consent of the profession, morphine is the preparation most generally chosen, and the popular opinion that it is both a respiratory and cardiac stimulant (helping the heart perhaps by a general vasodilator action, besides allaying morbid irritation and pain) is not without foundation.

Is morphine equally beneficial in aortic and mitral disease?

Some, as Dujardin-Beaumetz, think that it is of especial benefit in aortic regurgitant disease. Here it is, he says, a sovereign remedy—as much so as digitalis in mitral insufficiency—opposing the two great symptoms which result from lesions of the sigmoid valves, the cerebral anemia and the dyspnea; it also combats the neuralgias of the cardiac and pulmonary plexuses. T. Clifford Allbutt finds morphine equally serviceable in mitral regurgitation, one hypodermic injection being given in the evening. Bartholow also speaks favorably of morphine injections in mitral disease. Germain Sée extols these injections in cardiac dyspnea, but calls attention to the evils attendant on the use of morphine, such as disturbance of the appetite, digestion, and nutrition, formation of the morphine habit, diminution of the urine, etc. He has seen mophine bring on the Cheyne-Stokes respiration when injudiciously administered.

Osler thinks that the calming influence of opium in all conditions of cardiac insufficiency is not sufficiently recognized.

Tyson takes the ground that persistent cardiac dyspnea, dependent so often upon passive congestions and pleural effusions, not otherwise relieved, demands an opiate, of which morphine is the best. In milder conditions Hoffman's anodyne may be tried.

The American translation of Strumpell speaks of morphine in cardiac disease thus: "The dyspnea of heart disease is usually the most distressing symptom of all. Here, too, our chief task is, of course, to restore the compensation; but failing this we must try to relieve the dyspnea symptomatically. Morphine is most efficient in this respect. In general morphine is, next to digitalis, the most indispensable remedy in the treatment

of severe heart disease. It is usually well borne and procures great relief, especially if given subcutaneously. If we have to do with the last stage of the disease we need not spare large doses."

Dr. F. S. Toogood, in the London *Lancet* of November 26, 1898, regards the notion that morphine is dangerous in heart disease attended with renal insufficiency as a prevalent one; he disputes its justness, and commends the use of morphine in desperate cases where other remedies have failed. Although doubting the prevalence of such a view among our best practitioners here, the report of experiences which were illuminating to him may not be amiss for others, as we are inclined to agree with Osler, that the "calming influence of opium in all conditions of cardiac insufficiency is not sufficiently recognized."

Toogood has employed morphine hypodermically in those distressing cases (mainly of mitral incompetence) where the exhibition of digitalis, strophanthus, and convallaria excites vomiting, where the stomach retains practically nothing, where the heart is extremely irritable and irregular in rhythm and the pulse in volume, where often an ever-present dyspnea renders the condition of the patient intolerable from exhaustion and want of sleep, and where there may be also edema from failing circulation, and a scanty amount of albuminous urine. In these cases the subcutaneous injections have given most gratifying results. The pulse has become steady, strong, and regular, the edema has disappeared, the dyspnea has been relieved, and the urine, instead of being scanty, high-colored, of high specific gravity, and containing albumen, has become normal in amount and character, and the albumen has become much less or has entirely disappeared. Dr. Toogood reports five cases, two of them typical cases of angina pectoris, where life was apparently prolonged and a fair measure of comfort maintained by morphine injections; no bad effects from the remedy were noted. One of the other patients had mitral regurgitation with edema and dyspnea, urine scanty, loaded with lithates and somewhat albuminous, pulse small, rapid, and irregular. Under the influence of morphine injections he was able to sleep quietly and comfortably; the pulse came down to 80 beats per minute; the urine increased to seventy ounces; the edema disappeared; and the albumen cleared up. His general health so far improved that he was able to resume most of his former occupations.

Another patient had both aortic and mitral regurgitant disease, and all the ordinary cardiac stimulants having failed, resort was had to morphine hypodermically. A fresh lease of life was given this patient. In another case diagnosticated as obstructive mitral disease, the pulse, first tumultuous and rapid, became almost imperceptible, and the patient was in a state of collapse. The urinary secretion was nearly suppressed. Under the influence of a hypodermic injection of one-fourth of a grain of morphine every twelve hours the patient began to improve, and was able to sleep; the vomiting, before persistent, ceased; the urine became normal in amount; and the tumultuous action of the heart subsided. This patient ultimately recovered so as to be able to resume work.

Dr. Toogood closes with the remark "that morphine in large doses is a cardiovascular depressant is well known, but its soothing effects upon irritable conditions of other organs are so well recognized that I am inclined to think that the undoubtedly beneficial results in cardiac disease are due to its action upon the nervous apparatus of the cardiovascular system, both central and local, bringing rest to an overstrained organ, and allowing it the chance of developing its recuperative power."

A STUDY OF SIXTY CASES OF LOBAR PNEUMONIA.

The *Medical News* of December 24, 1898, contains an article on this topic by A. A. SMITH. He details the plan of treatment as follows:

All of the patients were given water to drink—indeed, they were urged to take water very freely. During the acute stage the diet consisted chiefly of milk, broths, soups, jelly, and eggs, when the patient was able to take them. Kumiss and matzoon were also allowed. When pain was a marked feature during the first days of illness morphine was used sufficiently to relieve it. In some cases in which pleurisy was a complication and the pain severe, adhesive plaster straps were applied to the side to restrict movement. As most of the patients were alcoholic and delirium was a prominent feature, with wakefulness, hypnotics were used, but always with care, the choice of these depending somewhat upon the amount of delirium. In some of the cases twenty to thirty grains of chloralamid at night gave satisfactory results. In others a combination of bromide with mod-

erate doses of morphine seemed to work more satisfactorily. Sulphonal and trional were also employed in the early stages in some cases, and apparently produced no depressing effect; on the contrary, refreshing sleep resulted. Alcohol in the shape of whiskey was used in a large proportion of cases, but more especially because the patients were alcoholic and on account of its sedative effect rather than as a cardiac stimulant. The quantity of whiskey varied from four to eight ounces in twenty-four hours, but in a few cases this quantity was increased to ten or twelve ounces.

Cathartics were used as indicated, and as a routine practice in cases which were seen early in the development of the disease.

Of the coal-tar preparations, a combination of phenacetine and caffeine was employed in some of the cases seen early in which there was severe headache, dry skin, high temperature, severe muscular pain, and marked restlessness. This was given in small doses —phenacetine five grains and caffeine one grain — and repeated every three, four, or five hours, the indication being the moderate reduction of temperature, if along with this reduction the unpleasant symptoms mentioned were decidedly relieved. This combination was not used in any instance after the third day. Digitalis was used only in cases in which there was valvular cardiac disease with predominant dilatation, and because of this condition of the heart.

Strychnine and glonoin were used in a large proportion of the cases as a routine and from the beginning of the treatment. Strychnine was given in doses of from one-fiftieth to one-thirtieth of a grain every three or four hours, according to the severity of the case and the effect produced. Glonoin was given every two hours in the daytime and every three hours at night, in doses of one-fiftieth of a grain.

Baths in the form of the bed-bath or sponge-bath were given in cases in which there was high temperature (above 103° F.) and marked restlessness. No plunge-baths were given. These baths were not given at regular intervals, but according to indications—*i.e.*, temperature of 103° F. and over with marked restlessness. The temperature of the baths ranged from 75° to 65° F. In ten cases compresses were applied to the thorax at a temperature ranging from 75° to 65° F., the indication being the same as for the giving of the bed-bath or sponge-bath. No special pains were taken in the fitting of the compresses. A sheet doubled four times was dipped in water at the temperature named, and was then wrapped around the patient from the axillary region down to the hips. The temperature of the water varied with the temperature of the patient. The compress was applied to the thorax because this was the most convenient region, and not because it was believed that it would produce any special effect upon the process going on in the lungs, but rather for its effect as an external application of cold. It was noticeable that in the cases in which the compress was applied there was at first objection on the part of the patient, but within twenty-four hours it would be asked for and welcomed. The compresses seemed to reduce the temperature, diminish the frequency and increase the force of the pulse, quiet the nervous system, and produce refreshing sleep. Almost invariably the patient said that he was more comfortable after the compresses had been resorted to.

In two instances, as a matter of experiment, these compresses were applied around the body from the lower part of the thorax down to the thighs, over an area corresponding in size to the thoracic region, with the result that they had the same effect as when applied over the thorax. It is simply a modification of the bath and seemed to act by stimulating the respiratory and circulatory centers, reducing temperature and quieting nerve perturbation.

In cases in which pulmonary edema developed, or in which cyanosis was a marked feature, inhalations of oxygen gave great relief. This was administered freely for from six to eight minutes at a time at intervals of from half an hour to two hours, depending upon the severity and persistence of these two symptoms.

MYXEDEMA AND ALLIED DISORDERS.

ORD writes upon this topic once more in the *British Medical Journal* of November 12, 1898. He tells us that under the head of treatment it must first be observed that until the introduction by Dr. Murray of the practice of making hypodermic injection of a glycerin extract of the thyroid gland, no remedies could be spoken of as effective. Arsenic and iron were suggested by the very obvious presence of anemia; and each in its way often produced some improvement in the general health of the patients. The hypophosphites were used where the nervous weakness was particularly evident, and jaborandi or the

salts of pilocarpine were used in order to favor the occurrence of perspiration. In addition to the use of drugs, the introduction of portions of the thyroid gland into the tissues of the body has been used by several observers. Some found a resting-place for the gland in the peritoneal cavity, others in the tissues beneath the skin. The writer has made use of the latter method in several cases, choosing a spot over the upper part of the pectoralis major muscle, where the portion of the thyroid gland could be deeply embedded in subcutaneous tissue.

In all cases some improvement rapidly followed the operation; the skin began to get moist, the patient's face to fine down, and the hair recovered somewhat its healthy character; but in no very long time it could be ascertained by the touch that the embedded gland was diminishing in size, and at length it disappeared. With its disappearance passed away all the signs of improvement. It is just possible that by regular repetition of the process something like cure might have been effected, but Ord does not know that any one has performed the operation more than once or twice, the difficulties of such a proceeding being very obvious. It must be stated that the embedded glandular structure was taken from a goitre just removed by operation.

After Dr. Murray had made his important discovery, Dr. Hector Mackenzie found that the internal administration of the gland or its preparations brought about as marked an improvement and progress to cure as had been effected by the hypodermic injections, and the internal administration of the thyroid gland in one way or another is the method of treatment now usually adopted. It appears that the administration of the thyroid gland itself, when it can be carefully and regularly maintained, is the most appropriate form of treatment. The gland may be finely minced and administered raw with sugar or salt, or may be lightly cooked. The size of the gland—mainly obtained from the sheep—varies a good deal, and such variation is to some extent a justification of the administration of an extract obtained from a number of glands so as to get something like an average. In one case still under occasional notice an affectionate husband has been at the trouble to procure regularly thyroid glands from sheep and to prepare them in a raw state for administration to his wife. The original quantity administered was one gland a week. As the patient has improved, the frequency of administration has been diminished, but it still goes on as it has gone on for some years, and at the present moment the lady presents no signs whatever of the disease.

It is possible to give the thyroid gland too frequently. When the knowledge of its efficacy as administered internally first became known the writer gave to a patient, who was so ill as hardly to present any chance of maintaining life, one gland a day for four days in succession. At the end of that time she suffered from violent headache, vomiting, and pains in the limbs, with rise of temperature amounting to 6° F. With such a lesson the gland was administered at longer intervals—namely, of a week to ten days—with ultimately the greatest benefit. But to procure fresh and healthy glands and to prepare them in the proper way involves a great deal of trouble, and its use may be replaced by the administration of Dr. Murray's glycerin extract in doses varying from ten to thirty drops a day, or every second or third day, according to the effects produced and to the patient's power of bearing the influence of what we may now call the drug. Still more convenient and not ineffective are the preparations in the form of tabloids now in common use. Some of these contain the dried and crushed gland, others extracts of it, such as the excellent powders devised by Mr. Edmund White, the therapeutist of St. Thomas's Hospital. On the whole, Ord prefers the extracts of the whole gland to any kind of principle derived from it by chemical processes. Perhaps the next best form is the dried and powdered gland of the Pharmacopœia.

A good deal of extremely interesting work relating to the preparation has been done by various observers, and Ord draws attention to "Observations on the Chemistry and Action of the Thyroid Gland," by Dr. Hutchison, demonstrator in physiology, London Hospital Medical College.

According to Dr. Hutchison and others, colloid matter prepared in various ways from thyroid gland is found to contain a definite quantity of iodine, which appears to be present in the form of what has been called "iodothyrin" (Bergmann).

We may note in passing that, according to Dr. Hutchison, parathyroids when administered in myxedema have no effect upon the disease, although in operations on dogs no myxedema occurs if the parathyroids are not removed as well as the thyroid.

CONSTIPATION AND ITS MODERN TREATMENT.

We have already quoted a paper by HERSCHELL on this topic. In another paper in the *Clinical Journal* of November 16, 1898, he proceeds to tell us that the very first thing to do when commencing the treatment of a case of constipation is to make absolutely certain that there is no fecal matter abnormally retained. In some cases we will have ascertained its presence by methods of examination; in others there will be symptoms present which warrant us in suspecting it; but in others both of these will be absent. In the first two instances one can certainly feel no hesitation in washing out the bowels, but in the last the question arises whether we may assume that the bowels contain nothing abnormal, or whether we should make sure by one or two large enemata. In the writer's opinion we should certainly assume that there may possibly be fecal retention, and act accordingly, for the following reasons:

It is extremely unlikely that habitual constipation can have existed for any considerable length of time without some fecal masses being abnormally retained; many fecal masses cannot be discovered on a physical examination of the abdomen; chronic fecal retention does not invariably give rise to symptoms of any kind; we certainly cannot cure the constipation as long as there are any fecal masses permanently retained in the intestine, and the treatment for their removal can do no possible harm to the patient. We will therefore commence our treatment by making certain that the large intestine is empty, and thus have a fair start in the management of the case, with the definite knowledge that we have eliminated a possible factor.

One or more of the following four conditions may be present, therefore our measures will vary accordingly:

Fecal masses may be felt by an examination *per anum* blocking the rectum.

Masses may be made out by palpation in the sigmoid flexure.

Masses may be felt in the remainder of the colon or in the cæcum.

There may be no physical evidence at all of anything abnormally retained.

Any one or more of the first three conditions may be present in conjunction. The author takes them in order, and points out the treatment to be pursued in each case.

The rectum must be emptied before we can do anything more in the treatment, as obviously until this has been done no fluid can be introduced into the upper parts of the colon. In many cases a simple enema of hot soap and water will be all that is required, but in others it proves of no avail, and it is necessary to use some agent which has a solvent action. Two substances are of especial value for this purpose—olive oil and ox-gall. Olive oil consists mainly of oleic acid, which is a powerful solvent of feces, and ox-gall acts in the same manner, but more energetically. A combination of the two forms one of the most efficient solvents of fecal matter that it is possible to conceive. The writer states that for a knowledge of this valuable property he is indebted to Mr. William Allingham, who communicated it to him over twenty years ago. It is quite possible that the rectum may be so tightly packed that there may be very little room for any injection to be introduced. Under these circumstances three ounces of the asafetida enema of the B. P., mixed with an ounce of fresh ox-gall or with a drachm of the purified dried preparation, may be used every two hours until an effect is produced. Another method is to introduce a mixture of warm olive oil and ox-gall every night at bedtime, and allow it to remain up all night. In the morning a large enema of hot soap and water will usually empty the rectum.

If, however, the symptoms are urgent, and it is necessary to empty the rectum as soon as possible, continuous irrigation with the double tube is the best course of action, and the writer has designed a special piece of apparatus for this purpose. A large vulcanite tube, long enough to pass beyond the internal sphincter, terminates at the end which is to be introduced into the patient in a large opening with thick rounded edges, and to the other is attached a piece of rubber tube leading into a pail placed upon the floor—or a Kelly's douching sheet may be used. A small orifice is made in the rubber tube about an inch from its junction with the vulcanite rectal one, and through this is passed into the bowel a soft-rubber stomach-tube, with preferably a terminal eye. This in its turn is attached to a douche-can hanging at a convenient distance above the patient. The effect is that the water enters the bowel in a small forcible stream, and the débris leaves it again almost at once by the wider vulcanite one, carrying with it bit by bit the fecal masses which undergo continuous disintegration. It is convenient to introduce the large vulcanite tube before the rubber tube is attached, as this permits the use of an obtura-

tor, and materially facilitates the operation. Such an apparatus may be easily extemporized from any piece of tube of the required diameter, but one must remember on no account to use a glass one, as it might possibly be crushed by spasmodic action of the sphincter and seriously injure the patient.

When the rectum is empty, or has been emptied as just described, but masses can be felt in the sigmoid flexure, enemata of soap and water, olive oil, and ox-gall are to be tried as above, but the technique of their administration is a little different from that used when it is only desired to empty the rectum. Then an ordinary Higginson's syringe could be used; now we must make use of a douche-can raised about a couple of feet above the patient. If these prove ineffectual to empty the bowel, continuous irrigation as in the case of the impacted rectum must be used. A Türck's double colon tube is introduced into the sigmoid flexure, an operation not at all difficult of execution; one tube is attached to a douche-can two feet above the patient, and the other one to a rubber pipe leading to the receptacle under the bed. The patient lies on his right side. This irrigation of the bowel may be kept up for an hour without the slightest damage to the patient. There is not the slightest doubt that we owe a deep debt of gratitude to Professor Türck for placing within our reach this method of irrigating continuously the large bowel. By its aid the treatment of the various inflammatory affections of the colon is much simplified, and we are enabled to remove fecal accumulations which were hitherto beyond our aid.

Masses may be felt in the transverse or ascending colon or cæcum.

The large bowel is apparently empty.

Our procedure in both these cases will be the same. Our object is to completely clear out any possible retained fecal matters from the whole of the large bowel. This is accomplished by the administration on several days in succession of a douche of hot water containing a little boric acid or other harmless disinfectant. Latterly the writer has been using a normal salt solution. Enemata of the ordinary size (a pint or two) are useless for this purpose, as it is tolerably obvious that to reach, for example, a fecal mass in the cæcum, the whole of the large intestine must be filled with liquid. Into a normal adult healthy large bowel half a gallon of water can be injected without materially stretching it, and much more is required to fill the dilated colons which we so frequently meet with in cases of long-standing constipation.

The problem, then, is to introduce a sufficient quantity of liquid without exciting the propulsive efforts of the patient. This can be accomplished by attention to the following points of detail:

A continuous pressure must be used, not an intermittent one. One can do this by means of a douche-can suspended at an appropriate distance above the patient. With a Higginson syringe not only will the rhythmic alterations of pressure that are produced in the bowel infallibly give rise to expulsive efforts long before a sufficient quantity of water has been introduced, but one is absolutely unable to regulate the exact pressure which we are using.

The pressure under which the water passes into the intestine must be a low one. Anything above two pounds to the square inch will be dangerous in an adult, much more so to a child. As the amount of pressure actually exerted in the bowel depends not only upon the height of the column of water (*i.e.*, the distance of the can above the patient), but also upon the resistance which is met with in the bowel, it is of great practical assistance to include a mercurial manometer in the circuit—that is, if one wishes to do his work scientifically and intelligently, and to know exactly what is taking place inside the patient. By this means one knows the exact moment when the fluid, ceasing to simply flow into the intestine, commences to distend it.

The force of gravity must be called in to assist the passage of the liquid towards the cæcum. The patient must be placed in the knee-elbow position or on his back, with the hips raised. Personally, for the latter purpose, the writer uses a special apparatus, but it can also very well be managed by raising the foot of the bed on blocks.

It is a distinct advantage to place the flat of the disengaged hand upon the abdomen of the patient, as by this means the rapidity with which the colon is being filled can be estimated.

When the physician has once commenced a series of flushings of the colon he must on no account stop them for longer than twenty-four hours at a time, until the appearance of the washings informs him that all retained fecal material has been removed. Otherwise he may make the patient very ill, as the long-dried fecal matter being moistened and dissolved liberates in the intestines of the patient

the locked-up toxins, and such manifestation as an attack of acute urticaria may supervene. For this reason it is advisable to add to the washing water a little boric acid, orphol, or other harmless disinfectant.

FURTHER FACTS CONCERNING THE TREATMENT OF THE CHRONIC FORMS OF HEART DISEASE DUE TO RHEUMATISM.

The London *Lancet* of December 10, 1898, contains an article part of which we have already abstracted for the THERAPEUTIC GAZETTE. In this article Dr. Sansom says that special treatment of the nervous system in rheumatic diseases of the heart, even those which seem to be chronic, is in many cases of very high importance. He says of course he hesitates before concluding that the galvanic current was directly of benefit by influencing the vagus itself. He had, however, observed many cases in which such treatment had given good evidence of success in the treatment of the rapid heart and in the various forms of Graves' disease. Cases in point are detailed in his oration on the Rapid Heart at the Medical Society of London and elsewhere. From observation since of a long series of cases of Graves' disease which have progressed to recovery in a much briefer time than was the case under his former experiences, he cannot doubt that galvanism (the continuous, not the interrupted, current) has a directly favorable effect. He thinks that there is good reason to believe the involvement of the nervous elements, which are the agencies of the cardiac reflexes as well as regulators of the trophic conditions of the heart, is to be regarded as a very important consideration for diagnosis and treatment in rheumatic inflammations and dilatations of the myocardium. He says he is at a loss to explain why one case of pericarditis, of carditis, or of general temporary enlargement of the heart, differs so widely in its symptoms from another without assuming that the involvement of the nerve elements plays an important part in the pathogeny. He has seen, as others have, a case in which the physical signs of pericarditis have been fully manifested, and yet there has been no dyspnea and scarcely any subjective discomfort; while in another case the face denotes anguish, the breathing is rapid and gasping, the suffering is intense, and the signs all show that the patient is at the point of death.

Considering the marked and agonizing dyspnea of some cases of acute pericarditis Dr. D. B. Lees suggested the questions, "Is there a dextrocardiac respiratory center?" and as a consequence, "Is there a dextrocardiac respiratory reflex?" When there is no disease in the lungs and little or no defect in the aeration of the blood, how shall we explain the very obvious dyspnea unless we conclude that there is an involvement of the nervous mechanism? The late Dr. Sturges pointed out in his Lumleian Lectures that in the cases mentioned it might be contended that there was not pericarditis alone but carditis, with the result that the whole substance of the heart was so weakened that the symptoms in question might be explained by the muscle failure. "But," he added, "the extremity of the dyspnea would seem better explained by Dr. Lees' view, viz., that there is an automatic reflex from the right ventricle to the respiratory center, such reflex being called into action by the acute failure of the right ventricle resulting from the inflammatory disease."

Dr. Sansom considers the observations of Dr. Lees and the late Dr. Sturges of very high importance. He says it appears to him proved by a strong array of evidence that dilatation of the heart can occur as the direct result of disease of the nervous system. He has observed it when there have been signs of neuritis of the vagus. In the cases in which the heart becomes dilated in the course of Graves' disease the dilatation is probably due to nerve disturbance. In palpitations of the rapid heart it may be concluded that disorder of the vagus is the immediate cause of the symptoms. In many cases of rheumatic heart disease nervous disturbances of the heart become epiphenomena. So it can scarcely be doubted that a morbid irritation conveyed to the vagus center, whereby the control power and the other endowments of the nerve are weakened, is in many cases a very important contributory factor to produce the ensemble of symptoms. He says, therefore, it seems to him that an attempt to influence the vagus by the continuous galvanic current is a very reasonable procedure; moreover, it is one very easy to accomplish. It is of course best that the method should be put in train by an electrotherapeutic expert, but this is by no means essential. The practitioner in attendance can arrange every detail, and a nurse or the patient can soon be trusted to do all that is necessary, for the regular employment of the method should be continued for many weeks or even months.

Dr. Sansom says he by no means wishes it to be understood that this plan of using the galvanic current for increasing the tone of the pneumogastric nerve is the only plan to be adopted for favorably influencing the nervous system in these cases. Moral agencies—the inspiration of hope, the avoidance of depressing emotions, and the inculcation of cheerfulness—are of high value. And when muscular movements are permitted and tentative training has taken place, changes of scene and climate and the use of baths and systematic exercises are potent agencies for good. He has said elsewhere that allowance must be made for many fallacies when the estimation of the value of treatment by baths and exercises is attempted. He has given in this communication his reason for believing that the enlargements of the heart may occur and recede in a way which may be independent of treatment, and he has cautioned against the danger of pursuing any plan of muscular exercises when rest is of paramount importance. Nevertheless, when all these logical deductions are made, he states he cannot but be convinced that in many cases systematic baths and exercises and the careful following out of a plan of treatment such as that of Dr. Blanc, of Aix-les-Bains, or that of Dr. Schott, of Nauheim, are of great therapeutic value. He feels it only right to state his opinion that there is not infrequently manifested nowadays an influence which works much for evil in disturbing the rational treatment of chronic heart disease. It is the influence of the irresponsible third person—he explains what he means in the form of hypothesis and parable. A patient has experienced an attack of rheumatism with heart involvement, and under the conscientious care of his medical attendant has entered into convalescence. He or she meets the irresponsible third person, who says: "How very ill you are; have you tried the barium and gold treatment?" "No." "Then your doctor cannot know anything about your case. You must go to my doctor, who knows all about the barium and gold treatment." Or it may be, "Has your doctor ordered you to Paradis-les-Bains or Weissnicht-wo? Oh! you must go to a doctor who will be sure to order you to go to Paradis-les-Bains or Weissnicht-wo."

Dr. Sansom says he is sure that these phenomena of interference are not merely visions of the mind, but are distinct dangers to good progress in therapeutics. The lay public are apt to be captivated by fashion in matters medical. They hear of a remedy or a given plan of treatment, and their enthusiasm gets the better of their discretion. Their knowledge is and must be superficial. They reason from the supposed remedy to the disease, not as the conscientious medical man does, from the disease to the remedy. It is the medical man's duty to keep himself abreast of therapeutic science. He has already in all probability duly estimated the prospective value of the means of treatment suggested by the irresponsible third person. If he has not suggested them it is because he thinks them unsuitable to the given case. To the irresponsible third person every case presenting symptoms of heart disturbance is a case of heart disease to be treated by some blatant method for the cure of heart disease. The intricacies of morbid processes involving the heart are of course unknown to the irresponsible third person. Even in the case of the rheumatic heart, which Dr. Sansom says he has attempted to sketch out, there is much that is intricate and perplexing, and the conditions for treatment are multiform. In other cases in which not only the rheumatic changes but the influences of diseased vessels, of degenerations, of the diseases of maturity and more advanced age are to be considered the conditions are more complex still. A disturbance of the well merited confidence between patient and medical attendant works banefully for the former, and very often the consultant who has thus been patronized by the irresponsible third person feels himself in an undesirable position, for the facts are withheld from him, and the previous history of the patient as offered to him is vague or garbled.

Dr. Sansom concludes by saying that it is the duty of any practitioner who observes a case of rheumatic heart disease, however chronic, to guard his patient against the subtle future dangers of his malady. It is incumbent on him to make himself acquainted with all the therapeutic means which the present state of science indicates. He says he thinks it was Sydenham who said to a lady patient, "Madam, you are entitled to my brains—to all my brains." The medical man must employ such means as are sanctioned by practical experience according to his own discretion, without being led away by quasi-scientific will-o'-the-wisps. The path is not always easy to find, and light from many sources is to be sought for; but the rule is a good one: "Turn to the right and keep straight on."

THE TREATMENT OF TYPHOID FEVER.

Dr. SIDNEY PHILLIPS, of London, writes on this important theme in the *British Medical Journal* of November 12, 1898. After discussing the disease somewhat in detail, he tells us that as regards treatment it will be convenient to speak of heart failure, asthenia, and blood failure together. For all of them one essential is to prevent waste of material by diarrhea, or hemorrhage, or profuse sweats, and to supply as much nourishment as can be digested and absorbed.

As regards food, Dr. Barr recommends the giving of solid food whenever the patient "likes it, wishes for it, and enjoys it." He argues that such food will not be likely to cause perforation, as it becomes softened before getting into the intestine, and that perforation only occurs in two or three per cent of cases. The writer thinks cases do occur with little or no intestinal ulceration in which solid food might be given early without ill effect, but in the absence of certain means of distinguishing such cases, and remembering unfortunate results which have occurred in some patients who have surreptitiously followed Dr. Barr's treatment, he thinks liquid food is the only justifiable mode of nourishment in the active stage of typhoid fever; and of all foods milk should be the staple diet, diluted with water, lime-water, or barley-water, according to the wish of the patient and the discretion of the medical attendant. Where milk so diluted fails it will be sometimes better taken peptonized; in some cases it is borne well when diluted with tea, and there seems no reason to deny a typhoid patient either tea or coffee. We give caffeine for the heart, tannin to check diarrhea, and allow sugar and water to be taken; why should a mixture of these be disallowed?

In some cases of vomiting or diarrhea beef tea or meat extracts have to be substituted for milk. The quantity of milk given should be as much as the patient can digest without flatulence or colicky pain or curds in the stools. As a rule three pints is enough in the twenty-four hours, but the author sees no reason why more should not be given if the patient can take it well; persons often take five or six pints of milk a day under the Weir Mitchell treatment, and a patient wasting and losing blood rapidly, as in typhoid, will benefit by as much as he can take without digestive disturbance.

As regards stimulants the writer has nothing to add to the rules usually followed; they are not necessary as a routine part of treatment.

An important point is to secure sleep, and opium is quite admissible. Sir William Broadbent deprecates the use of chloral. In the treatment specially directed to cardiac weakness digitalis, strychnine, and caffeine are to be resorted to, but cardiac tonics receive little response from a heart with organically weakened muscle tissue; caffeine and strychnine act well together, but strychnine here, as in other conditions, may easily be pushed so far as to make the patient wakeful. Ether, ammonia, and sumbul, and diffusible stimulants, are often of use. Alcohol, no doubt, stimulates the heart, but if pressed too much has the contrary effect.

In all cases, and especially in some, endeavors should be made to keep up the volume and composition of the blood; sweats should be checked by belladonna or oxide of zinc or agaric acid, and diarrhea by enemas. There is no reason why cold water should not be given freely, due regard being had to preventing abdominal distention. In many cases ice-sponging or the cold bath contracts the vessels and lessens their relaxation for some time after its use, and possibly in the bath, or the tank, fluid is actually absorbed cutaneously. Raw meat juice and every form of nutriment possible must be given in cases of gradual weakness from blood deterioration, and the writer has sometimes given iron and malt extract. Oxygen inhalations are also of use. Solid food must be given as soon as it can be taken with safety; after three days without fever at any time in the twenty-four hours it may be given; it is best to intermit one day at first to ascertain if a rise of temperature is produced. In cases where it is deemed probable that little ulceration occurs the writer gives solid food earlier than in other cases. When cases drag on with little rises above the normal, solid food must be tentatively and gradually tried. In convalescence patients are hungry and require feeding up, and it is often in cases where solid food is long delayed that thrombosed veins occur.

When there are evidences of profound bloodlessness and weakness, whether following hemorrhage or not, saline injections may be of use. Personally, the author has found the subcutaneous injection of salines gives so much pain that he prefers injecting the saline fluid into the basilic vein. This flows in better with a simple cannula, drainage tube, and funnel than pumped in by the double-

action syringe made for the purpose. The writer has injected two pints, usually at a temperature of from 100° to 115°. After it there is usually sweating and rise of temperature temporarily. He believes the fluid should not be injected at so high a temperature as 105° in typhoid fever. In two cases the author thinks the patient's recovery was due to it. In one of them, in 1896, the patient was in an apparently hopeless state of collapse, but recovered after two saline injections. Probably blood transfusion would be better, for in most cases saline injections only give temporary benefit.

Perforation may be accompanied by its well known symptoms, but in some cases of typhoid fever where nerve tone is already lost, and the tympanitic belly is soft and doughy, perforation and after-peritonitis may occur most insidiously, with little pain, collapse signs, or alterations in temperature.

Cases of recorded recovery from perforation based merely on evidence of symptoms cannot be taken as conclusive, for it may be simulated by rupture of peritoneum over a mesenteric gland and other causes; indeed, the abdomen has been opened for perforation in several cases where it had not occurred. In Herringham's case nothing was found and the patient recovered; in Sheild's case rupture of gall-bladder. In a case, however, recorded by Murchison a perforation had all but healed when erysipelas carried off the patient; and in a case at St. Mary's Hospital in 1894 a post-mortem examination showed a perforation all but healed when the patient succumbed to septicemia. Three cases of twenty-two recorded operations for perforated typhoid ulcers have recovered, and as operation affords a better chance of recovery than that offered by Nature, it appears to be indicated in all cases in which perforation can be diagnosed—the difficulty in the diagnosis, however, will prevent the operation being very often performed. The only other treatment affording a chance of recovery is opium.

Some have regarded hemorrhage as a favorable occurrence in typhoid fever, and there is no amount of hemorrhage that may not be recovered from. In 1882 the author saw, with Dr. Wakefield, a patient who bled two chamberfuls, and recovered. But the more general opinion is that it is a bad omen, and that death follows thirty or forty per cent of cases of free hemorrhage, though sometimes long after the bleeding has occurred. It is generally arterial, but in a case of the writer's in 1888 the necropsy showed that the dark blood had oozed away during life from a vein in the ileum, opened up by ulceration. In its treatment opium pressed freely, and turpentine, are useful, but often no drug is so efficacious as tincture of hamamelis; in one case in St Mary's Hospital in 1892 it checked the hemorrhage after all other remedies had failed, and is more to be relied upon than anything else—in five-minim doses in a little water every half-hour while the hemorrhage lasts, with or without opium. The application of the ice-bag to the abdomen seems beneficial, but it is depressing if kept on long after the hemorrhage has ceased; it freezes the abdominal wall into a leathery consistence, and probably interferes with the vitality of the subjacent intestine. The writer has repeatedly seen hemorrhage occur while the ice-bag had been on for days. The necessity for absolute non-movement of the patient when hemorrhage occurs is obvious.

In peritonitis without perforation opium is indicated.

Murchison in the edition of his work in 1862 wrote that diarrhea occurred in 96 out of 100 cases; in 1884 he found it reduced to 80 out of 100 cases; since that time it is much less frequent. Of 200 consecutive cases at St. Mary's, diarrhea occurred in only 115; constipation in 48; and the diarrhea was seldom very severe. In many cases it had been set up by a purge given before a diagnosis was made. Diarrhea is found in a very large proportion of cases in which hemorrhage occurs, and in the writer's opinion adds to the danger of typhoid fever by preventing absorption of nutriment and by draining the blood of fluid. He thinks purgative drugs should never be given, and diarrhea should be checked in every way possible by adapting the nature and quantity of food to the patient's powers, by giving all food warmed, and by enemas of starch with or without opium rather than by drugs given by the mouth. Of the latter, salicylate of bismuth in doses of twenty or thirty grains three or four times a day is very useful.

Constipation must be treated if obstinate; enemas are better than purgative drugs for this purpose, and should have some disinfectant added to them. It is very important to overcome constipation before solid food is given; if not, it often sends up the temperature and an immediate recurrence of symptoms. Some attribute relapses to the giving of solid food, others to constipation. Cer-

tainly the two combined will produce a rise of temperature and disturbance for a considerable time, though not a true relapse with fresh spots. Tympanites is commonest when there is much diarrhea. That form in which the belly is soft and doughy as well as swelled is due to general loss of nerve tone, and treatment affects it little. Diffusible stimulants, etc., may be tried. In the form of tympanites with tense abdomen hot fomentations are preferable to the ice-bag. Passage of a long tube into the rectum gives relief and often sets up retention of urine.

In many cases swelling of abdomen is due not to true tympanites but to stomach distention, the result of liquid food and the recumbent position. Food must be given in small quantities only.

Retention of urine must always be remembered; it is often overlooked in the general distention of abdomen, or because "overflow" occurs from the full bladder. Long retention may add uremic dangers in a typhoid patient very readily.

The question of moving a patient in cases where the sanitary conditions are bad has sometimes to be considered, for he will be likely if he remains where he is to take in fresh doses of the poison. On the other hand, as Sir William Jenner pointed out, the cases that do the worst owe it sometimes to having traveled when well on in the disease. If it is very early, careful removal will be best. If the patient is well on in the disease he had better remain where he is, as the risk of moving is too great.

In the third group the intercurrent affections of typhoid such as pneumonia are to be treated on ordinary principles; pneumonia is usually recovered from, and it is apt to begin or to end in the course of typhoid with abrupt rises of temperature or a critical fall, after which the typhoid temperature reasserts itself. Acute bronchitis in typhoid is more serious than pneumonia.

THE TREATMENT OF CHRONIC ECZEMA ON THE HANDS.

EDLEFSEN (*Therapeutische Monatshefte*, February, 1898) has found a successful mode of treatment of this disease. Eczema on the hands and fingers chiefly affects washerwomen, and not infrequently women of the better classes. He orders a paint consisting of pure iodine 0.1, iodide of potassium 0.25, glycerin 12 parts; the paint is applied every evening, and the hands are enveloped in lint. The irritation is always relieved, and in fourteen days the disease is generally cured. This treatment has been adopted with success in many cases where other remedies have failed. In the more obstinate cases boracic ointment was applied in the morning, and the iodine paint in the evening.

THE USE OF MYDRIATICS IN OPHTHALMIC SURGERY.

ERNEST CLARKE tells us in the *Clinical Journal* of November 28, 1898, that in all inflammations of the cornea, wounds of the cornea, and the severe inflammation of the conjunctiva, especially in phlyctenular conjunctivitis, a mydriatic is the most important part of the treatment. As previously shown, blepharitis and phlyctenular affections in children are almost always associated with some error of refraction which produces strain. This strain is removed by the paralysis of the ciliary muscles, and when the child is too young to wear glasses, atropine is the treatment.

Photophobia in children is at once lessened, and sometimes completely removed in a few hours, by the effective use of atropine, and especially is this the case when combined with cocaine. In older patients cocaine alone is very useful.

Again, the majority of cases of convergent squint in children are due to overaccommodation produced by hypermetropia; and if the child is too young for glasses, atropine prevents the ciliary muscle from being used, and thus lessens or cures the squint. In all forms of spasm of the accommodation mydriatics are invaluable.

In estimating errors of refraction it is of first importance to have the ciliary muscle at rest, and in all young patients atropine or homatropine must be used.

The mechanical effects of mydriatics are also of great importance; they are:

Prevention of synechiæ in iritis and penetrating wounds or perforating ulcers of the cornea.

In certain operations, such as needling.

In central cataract, to enable the patient to see round the opacity.

To enable the surgeon to make a thorough examination to see lens and vitreous opacities, etc.

Mydriatics should not be used in acute glaucoma. The fluids secreted by the glands of the ciliary body nourish the various structures of the eye, and the greater part of this

fluid passes from the posterior chamber through the pupil into the anterior chamber, and thence out at the filtration angle into Schlemm's canal. If this angle is not widely open the outflow is arrested. Dilatation of the pupil draws the iris into this angle, compresses the spaces of Fontana, and narrows Schlemm's canal also; and thus increased tension or glaucoma may result from the use of atropine, especially in those predisposed, as hypermetropes and persons over fifty. Priestley Smith has shown that a small cornea and a shallow anterior chamber predispose to glaucoma. Unfortunately iritis and acute glaucoma are often mistaken for one another, and many a glaucoma which might have been cured in its early stage had it been recognized is treated with atropine, and the eye irretrievably lost.

The writer reminds his readers of certain signs which may help in distinguishing these two affections:

ACUTE GLAUCOMA.	IRITIS.
Increased tension.	Tension normal.
A dilated pupil.	Pupil contracted.
Pain very severe, not only in the eye, but in surrounding parts.	Pain less severe and more local.

In glaucoma secondary to iritis we generally do not see the acute form, and atropine will probably do little if any harm, as the pupil will probably not dilate because of adhesions. In such cases use homatropine carefully and watch the result; if the pupil dilates well, do not repeat it; and if the tension increases, use eserine.

If it is necessary to dilate the pupil of elderly people in order to make a more thorough examination of the lens, etc., it is wisest not to use atropine. Homatropine will answer the purpose just as well, and is much safer.

In perforating ulcer of the cornea eserine sometimes does more good than atropine, probably because it reduces the tension. If the ulcer is at the margin, on no account use atropine, as prolapse of the iris may result. The same advice applies to marginal wounds of the cornea.

In neuritis, retinitis, and retinal asthenopia mydriatics are contraindicated, because their use causes more light to enter the eye.

In what form should mydriatics be used?

Clarke believes the days of "drops" are over. It is impossible to know when using drops or solutions how much of the drug is absorbed, and how much is wasted. They produce toxic symptoms by passing down through the tear passages into the throat, and they do not keep well.

On the other hand, ophthalmic tablets and disks have been brought to such a state of perfection that they form the most scientific, efficient, and safe method of administering a mydriatic. The most useful tablets are: atropine $\frac{1}{100}$ grain, and homatropine with cocaine $\frac{1}{50}$ grain each.

Tablets or disks should dissolve quickly when placed on the inner surface of the lower lid, and should cause little or no irritation or pain.

IS APPENDICITIS A SURGICAL DISEASE?

BECK writes on this topic in the *New York Medical Journal* of November 26, 1898. He finally tells us that appendicitis is a surgical disease and should be treated surgically as soon as the diagnosis is made.

So long as no physician is able to ascertain the grade of bacterial virulence at its early stage, the safest therapy consists in the early removal of the appendix.

If the patient or his advisers should object to operation, the expectant immobilization treatment should be instituted, and, after the attack is over, the necessity of appendectomy should be made clear to the patient.

Should the conditions surrounding the patient be of an extremely unfavorable nature, should no competent surgeon be obtainable, and should there be other difficulties, the risk of the expectant treatment should be preferred to that of a badly performed operation in an acute attack. Then, if he should pass over the attack, the patient should submit to appendectomy later.

Considering that the mortality of simple appendectomy is almost *nil*, its performance should be urgently recommended to the patient after the first attack.

The writer well realizes that doing this will often cause the greatest difficulties to the family physician. So many prejudices, so many family considerations obtrude on him that he will often fail to have the courage to contend with the whole weight of his personality for these theses, although he is convinced of their scientific truth. Nor will Beck throw a stone at the family physician who, *jurare in verba magistri*, intoxicates himself with the music of internist statistics, and sneeringly shows the surgeon who advises operation the list of dissuading internists. He simply deplores things as they are, and adds his share to the better appreciation of a

disease which, to its full extent, is recognized by none of us yet. He hopes that the day will come when its surgical prospective will be everywhere acknowledged.

But he thinks that what we are entitled to demand imperatively from every one who undertakes treating appendicitis is that he learn enough of the pathology of the appendix to appreciate from the beginning the risk which the patient runs during his acute attack, and that information should be given accordingly. Penzoldt well says of appendicitis: "In none of these cases can a gloomy sensation of gravest responsibility be suppressed. The physician who does not know this sensation does not know the nature of this disease."

SOME OF THE USES OF SALINE SOLUTIONS.

The *Journal des Praticiens* of November 26, 1898, mentions among other conditions the following ones in which hypodermic or intravenous injections with normal salt solutions are advisable.

In the first place it is pointed out that there are four classes of patients in whom this treatment is useful: first, in those patients suffering from hemorrhage; second, in infectious maladies of a surgical type; third, in infectious maladies of a medical type; and fourth, in intoxications and poisonings.

In grave hemorrhages it is justifiable to resort to intravenous injections, as much as three quarts being used, or in their place hypodermic injections may be employed. Particularly is this method of treatment advisable in internal hemorrhages, where it is difficult to control the flow, as, for example, in the intestinal bleeding of typhoid fever, in hemorrhage from the stomach, in certain forms of uterine hemorrhage, in obstinate nosebleed, in hemorrhage from the lungs, in certain purpuras, and in hemophilia. Intravenous and subcutaneous injections also do much good in the various forms of infection following surgical operations, as they dilute the poison and wash it out of the body, and it is stated this same method of treatment is useful in infectious sore throat, influenza, pneumonia, infectious endocarditis, and profound malarial poisoning. It has also been used with much benefit in typhus fever and even in typhoid fever and dysentery. With the use of intravenous or hypodermic injections of salt solutions in uremia and puerperal eclampsia our readers are already familiar. On the principle that epileptic paroxysms are sometimes due to autointoxication, this method of treatment has also been recommended in this state, and has proved of great value in the treatment of cholera infantum and marasmus. The following contraindications to its use are supposed to exist, namely, advanced degenerative changes in the heart muscle, severe arteriosclerosis, a condition of high arterial tension, cardiac and renal dropsy, pulmonary congestion, and edema of the lungs.

THE PAINLESS TREATMENT OF CRACKS IN THE NIPPLES.

At the meeting of the Paris Obstetrical Society held on November 10, 1898, a paper was read by MM. MAYGRIER and R. BLONDEL upon the "Treatment of Forty Cases of Cracked Nipples at the Charité Hospital." They had dressed the cracks with orthoform, which brought about complete anesthesia during suckling and kept the cracks aseptic. The application of the powder causes only slight smarting. The infant was put to the breast a quarter of an hour afterwards and sucked eagerly, as orthoform has neither taste nor smell. The anesthesia persists for some time. MM. Maygrier and Blondel made trial of orthoform powder alone, of orthoform followed by a moist dressing of boric acid, and finally with a strong alcoholic solution of orthoform dropped into the cracks. They considered this last method the best, for it caused no more initial smarting, but it quite did away with infection of the breast, probably because the solution was able to penetrate into the recesses of the fissures.—*Lancet*, Nov. 19, 1898.

SODIUM BICARBONATE BY INTRAVENOUS INJECTION AS A PREVENTIVE OF DIABETIC COMA.

Some time last year Dr. R. LEPINE published in the *Lyon Médical* an account of the case of a diabetic who had been in imminent danger of an attack of coma, but had been saved from it by an intravenous injection of three hundred grains of sodium bicarbonate. In the same journal of July 31, 1898, he records another instance of the successful employment of this device for warding off fatal coma. The patient was a man, thirty years old, whose diabetes was of unknown origin. He was very feeble, the patellar reflex was abolished, the pulse was frequent,

and Gerhardt's reaction (a deep-red coloration of the urine on the addition of a little iron perchloride) was as intense as possible. His mean daily excretion of urine amounted to about five quarts; each quart contained a little more than seventy-five grains of urea and from nine hundred to a thousand grains of sugar. In view of the intensity of Gerhardt's reaction, he was subjected to a pronounced alkaline treatment, being made to take daily nine hundred grains of sodium citrate and about a hundred and eighty grains of sodium bicarbonate. He was allowed leguminous vegetables in abundance. In spite of this treatment there was no improvement; the man lost weight, and on the 13th of July the depth and frequency of his respiration (thirty-two a minute) were striking, the pulse was 108, but there was no fever. The quantity of urine voided was smaller than usual.

In the presence of these symptoms, and thinking that within forty-eight hours the patient might fall into coma, Lepine lost no time in administering an intravenous injection of two quarts of sterilized water containing in solution three hundred grains of sodium bicarbonate. The infusion was conducted a little too rapidly, and in consequence, on auscultation of the heart, a galloping action of that organ was recognized, but there were no subjective cardiac symptoms, and the galloping ceased in a few minutes as the result of simple suspension of the infusion. The author thinks it was due to momentary overcharging of the ventricle. The results of the procedure were most satisfactory; the patient passed nearly six quarts of urine in the next twenty-four hours, and the pulse fell to 68. The man's general condition was good and his appetite had returned. The amount of sugar in the urine was progressively augmented. The secretion remained acid, although its acidity was somewhat diminished. Lepine infers from the urinary analyses that the first effect of the infusion was a great elimination of salts of beta-oxybutyric acid. The acetonuria present in this case was less marked than it usually is in cases of the kind, but on the day after the infusion the urine contained over fifty grains of acetone to the quart, and on the following day it contained less than a grain.

Of course, says M. Lepine, the patient was not cured, but he was evidently saved from an imminent attack of coma. His diabetes still persists, with all its possibilities.—*New York Medical Journal*, Nov. 5, 1898.

HEROIN.

DRESER (*Therapeutische Monatshefte*) says that heroin, the diacetic acid-ester of morphine, is a preparation which has been recently introduced, chiefly for the alleviation of cough and as a substitute for codeine, it being claimed that it is much more powerful than codeine in its effect as a respiratory sedative. It is stated, also, that while this is the fact its lethal dose is one hundred times greater than the efficient medicinal dose, while that of codeine is only ten times greater. The dose of heroin is one-third of a grain for the purpose named. It is also claimed for this new substance that while it allays abnormal irritability of the mucous membranes and so checks cough, it does not do so at the expense of depression of the respiratory center.

THE TREATMENT OF WHOOPING-COUGH BY THE INHALATION OF MEDICATED OXYGEN.

In a thesis presented to the University of Paris, and quoted in the *Gazette Hebdomadaire de Médecine et de Chirurgie* of October 2, 1898, Dr. M. LACROIX gives the results of his experience in the treatment of twenty-five cases of pertussis by inhalations of oxygen medicated with certain antispasmodics. The substances used were bromoform, bromide of camphor, and cherry-laurel water. The apparatus employed consisted of a bag containing the oxygen to which is attached a rubber tube conducting the gas into a reservoir, which he calls the saturator. This reservoir contains pieces of pumice stone which are saturated with the medicaments to be used. From the reservoir is an outlet tube furnished with a bone mouthpiece. The pumice stone is placed in a glass and is saturated little by little with the medicaments, the whole being stirred the while with a glass rod. It is then replaced in the saturator, and at each sitting a pinch of bromide of camphor is added. When the stone fills the apparatus a tampon of absorbent wool slightly compressed, and intended to stop the aspiration of particles of pumice or bromide of camphor, is placed on top. When bromoform is used, it is previously dissolved in the cherry-laurel water. Dr. Lacroix uses ten grammes of each, but the quantity may be varied according to circumstances.

The mouthpiece is placed in the patient's mouth, and a slight pressure of the oxygen bag sends the gas through the saturator, and

the gas thus becomes impregnated with the vapors. The taste of the mixture is said to be slightly disagreeable, but is nevertheless well tolerated by children. M. Coyon has treated at the Hôpital Trousseau over one hundred cases in this manner, without observing any pronounced dislike on the part of the patients. Dr. Dutremblay, on the other hand, finds a mask more convenient, and that method could be employed if the child refused to submit to treatment. The saturator needs renewal every four or five days.

About forty-eight quarts of oxygen is used daily in four inhalations, viz., twelve each time, about 8 A.M., midday, 4 P.M., and 8 P.M. The treatment is given without regard to either the access or the times of feeding. Dr. Dutremblay, however, divides the doses, and gives a few quarts of inhalation after each access, and this method would probably be advisable in private practice.

The advantages alleged for this treatment by Dr. Lacroix are:

It modifies the accesses of cough, diminishing them both in number and intensity.

It obviates complications, such as bronchopneumonia, hernia, prolapse of the rectum, epistaxis, vomiting, constipation, fetid stools, etc.

It strengthens the organism, relieving the general condition, and placing the organism in good form to resist the invasion of infectious diseases so frequent after whooping-cough.

The method seems to commend itself as rational, not difficult of application, and well worthy of a trial in this obstinate and distressing malady.—*New York Medical Journal*, Nov. 5, 1898.

THE CONTROL OF HEMORRHAGE BY GELATIN.

LANCEREAUX and PAULESCO employ the following solution:

℞ Gelatin, 2½ drachms;
Sodium chloride, 2½ drachms;
Water, 1 quart.

This is sterilized, and from one to two ounces, which may be increased to three or four ounces, is injected underneath the skin of the thigh.

For combating the hemorrhage of tuberculosis it is stated that Huchard employs the following formula:

℞ Gelatin, 2 drachms;
Sodium chloride, 2½ drachms;
Water, 1 quart.

Dissolve with the aid of heat, filter, and sterilize.

Commence the injections in the quantity of one to two ounces under the skin of the abdomen. Where it is desired to produce coagulation of blood in an aneurismal sac we may employ the following solution, which is very much stronger:

℞ Gelatin, 30 grains;
Sodium chloride, 2½ drachms;
Water, 3 ounces.

Of this they give one to two ounces subcutaneously.

THE PHYSIOLOGICAL ACTION AND THERAPEUTIC PROPERTIES OF PODOPHYLLIN, WITH SPECIAL REFERENCE TO INDIAN PODOPHYLLIN.

MACKENZIE and DIXON contribute a paper with this title to the *Edinburgh Medical Journal* for November, 1898, and in concluding a description of their research they draw attention to the following points:

That Indian podophyllin is an active purgative and a useful therapeutic agent; that it may be substituted for *Podophyllum peltatum;* but it is important that the physician should know which sample he is prescribing, as the Indian variety is nearly twice as physiologically effective as the American.

That the active principles contained in the crude resin are two substances: (*a*) Crystalline podophyllotoxin; (*b*) podophylloresin—both of which act as excellent laxatives in small doses, without secondary constipation or other objectionable symptoms.

That although both these substances act very similarly on the alimentary tract, it is only the podophylloresin which exerts a true cholagogue effect, which shows itself rather by a large increase of the solids secreted than by an increased quantity.

Both exert their specific activity when injected hypodermically in alcoholic solution, but in many so much irritation is produced as to forbid their employment in this manner.

THE THERAPEUTIC VALUE OF ANTI-STREPTOCOCCIC SERUM.

Dr. WILLIAM BAUM, of Chicago, read a paper on this subject before the Mississippi Valley Medical Association. Twenty-two cases have come under his observation in which the serum was used. Of these nineteen were erysipelas, one of erysipelas plus tubercular nuchal glands, one of facial erysipelas during childbed without septicemia, and one of erysipelas with puerperal septicemia and double labial abscess. The last

was the only fatal case. The serum used was supplied by Parke, Davis & Company.

The deductions he draws from an analysis of the literature and his own experience are:

In pure streptococcic infections the serum undoubtedly exercises a favorable influence on the course of the disease.

In the mixed infections the influence of the serum is noticeably demonstrable, but it merits further trial as an adjunct to other treatment.

Considering the grave character of the complications of a non-streptococcic nature reported, ordinary rules of therapeutics demand that in such cases, as with the diphtheria antitoxin, all indicated therapeutic procedures must be employed as well as the serum.

In view of the fact that erysipelas streptococci and phagocytes have been found to exist side by side in the lymph-channels, it is fair to assume that the influence of the serum is directly exerted bacteriologically on the streptococci and not entirely through a stimulation of phagocytic action.

The initial dose in all cases should be 20 cubic centimeters, to be followed by 10 or 15 cubic centimeters, according to the indications, every twenty-four hours.

Dr. Charles L. Minor said his experience is practically confined to secondary infections in tuberculosis. He has used the serum of Parke, Davis & Company with considerable satisfaction, and prefers it to Marmorek's.—*Southern Practitioner*, November, 1898.

REMARKS ON DYSPEPSIA AND A DIET.

The *Edinburgh Medical Journal* for November, 1898, contains an article by GILLESPIE in regard to this important theme, in which he states that he has been surprised at the frequency with which patients come complaining of some fancied disorder of the stomach, for which they have been treated in the usual manner, who prove on investigation to be suffering primarily from the metabolic misdeeds of bacteria in the bowel.

They undoubtedly presented symptoms of gastric disturbance, quite independent of hepatic troubles, while the state of the intestinal contents was usually but not invariably accompanied by autointoxication. By humoring the stomach with rest; with milk in small quantities and frequently, either in a natural condition or variously diluted and modified, thereby diminishing the number of bacteria admitted, or altering their species; by the use of calomel to destroy the bacterial forms in the contents of the duodenum and jejunum; of creosote, guaiacol, or other similar substances to deal with those in the ileum; and of salol to act on the microorganisms in the ileum and large intestine; by prohibiting all malt liquors and fortified wines; allowing, if stimulants are advisable, whiskey diluted to 4.5 per cent of alcoholic strength (one ounce with ten ounces of water), or champagne in moderate quantities—by such measures a rapid subsidence of all the symptoms is promoted. Cheese is often of benefit in this condition, given on each occasion in such amounts as the stomach can comfortably deal with. If this marvelously adaptable organ (considering the persistent ill-treatment, lay and medical, meted out to it) can digest cheese in fair quantities, its use may be pushed.

Shakespeare was sensible of the attributes of cheese in the process of digestion, and alludes humorously to it in "Troilus and Cressida" (Act ii, Scene 3), when he makes one of his characters exclaim: "Where, where!—Art thou come? Why, my cheese, my digestion, why hast thou not served thyself in to my table so many meals?"

Cheese is an excellent breeding-ground for many of the lowlier members of both the vegetable and the animal kingdoms. How can it, full of the organic agents of fermentation, check organic fermentative changes? Cheese undoubtedly possesses a considerable power of arresting or inhibiting those bacterial processes which are the actual agents in the production of intestinal dyspepsia, with its signs and symptoms—unless, indeed, it prove of too irritating a nature towards the mucous membrane of the alimentary tract. This power is due to the antagonistic properties of two classes of organisms.

It has been suggested in Germany with regard to the antifermentative action of cheese, and of kephir, that the carbohydrate moiety, although so small in such bodies, is the active antiseptic agent; the writer believes that the bacteria themselves form the pharmacological basis of the cheese prescription. The acids formed by these bacteria are inimical to putrefactive processes. The fermentation of the one class of organisms is incompatible with the fermentation caused by the other class. The great aim to strive for in excessive intestinal fermentation, alias putrefaction, is the destruction of the causal agents. Two methods are available—to forcibly drive them out of the bowel, or to

inhibit their growth *in situ*. These two methods should be used together. The first needs no further notice. The second may be carried out by the use of antiseptic drugs, by dietetic control of the bacteria swallowed, or by measures taken to raise the proportion of free hydrochloric acid in the stomach to a strength sufficient to inhibit the growth of, or prove fatal to, microorganisms partial to alkaline media, whether the acid-affecting forms are hindered by it or no. The ordinary conditions present in the contents of the bowel bear witness to the greater supply and prowess of the acid-fermentative agents. The reaction of the contents, save perhaps in a short portion of the lower end of the duodenum and upper part of the jejunum, probably is always acid, even if only slightly, in health—the cause, the metabolic processes of bacteria-producing organic acids as their natural output; the effect, a controlling influence over the growth of their kindred, but still rivals, the bacteria of putrefaction. The first class, as a rule, produce no poisonous substances, unless the alcohol they often form from carbohydrates be considered as such; the second class live largely on proteids, and, being extravagant by nature, use but little in support of their bodies, while manufacturing an excessive amount of unnecessary and innutritious substances to obtain that little.

Some experiments the writer has carried out on dogs seem to show that calomel acts upon the bacteria in the stomach contents, and in the higher parts of the small intestine; creosote and other antiseptic bodies of the same type act most powerfully below the jejunum; while the action of salol does not become marked until the middle of the ileum is reached. On testing the contents of progressive sections of the alimentary tract of the dog, killed two or three hours after the administration of a final dose of salol, no evidence of its decomposition could be obtained above the mid-ileum. Theoretically, salol is neither decomposed in nor absorbed from the stomach; experiment, however, has demonstrated that it can pass, presumably unchanged, through the stomach walls, and become altered in the blood, its derivatives appearing in the urine even if prevented from entrance into the gut. This has been shown in the dog. The duodenum was severed close to the stomach, and the pyloric end of the stomach pulled forward through the abdominal wall. Although it was impossible for the drug to reach the bowel, the dog's urine contained salicyluric acid, notwithstanding the complete failure of the test for that body in the contents of the stomach.

Calomel and salol, then, may be regarded as antiseptics acting in different spheres of influence. Usually it commences with a small dose of calomel, followed by a saline purge; and begin on the following day with eight-grain doses of salol thrice daily. A fact with regard to that drug is that the production of the perchloride of mercury, which must be the form through which it exerts an antiseptic action, and for which it is indebted to the hydrochloric acid of the gastric juice, does not appear to be proportionate to the size of the dose of subchloride. The transformation of a very minute portion of calomel into the perchloride is quite sufficient for all antiseptic requirements. After commencement of the salol treatment, a dietetic programme may be begun.

The writer has little or no faith in strict, hard and fast, empirical diets, and in this connection both gastric and intestinal dyspeptic conditions are alluded to. The habit of laying down unalterable dietetic rules, unalterable for indefinite periods—until the patient, maybe, gets well—leads to a practice of giving all patients who have any gastric trouble the same diet and the same limitations. Each dyspeptic is different from all others. Each case possesses some little idiosyncrasy, at least, which may profitably be taken into account. There is no doubt that many patients progress far more satisfactorily when they are entrusted with part of the responsibility for the proper conduct of their course of treatment, and when encouraged by a hope of achieving a return to normal health partly by their own endeavors.

ACTIVE CONSTITUENTS OF OLEORESIN OF MALE-FERN.

According to Professor Boehm, of Leipsic (*Sudd. Apoth. Zeit.*), the value of this preparation depends on the presence of aspidin, as well as that of filicic acid. Out of eleven preparations examined, six contained aspidin in large proportion (two to three per cent), while filicic acid was absent; four contained filicic acid, but no aspidin; and one contained small quantities of both. These results are of interest, as they apparently show that a high content of aspidin excludes the presence of filicic acid, and *vice versa*. Professor Boehm concludes after an experience of many years that an oleoresin containing principally aspidin is decidedly preferable to one rich in

would do well, since it would be impossible for them to obtain the drug; but of such cases the writer has no experience at sea.

THE TREATMENT OF URTICARIA.

The *Journal de Médecine de Paris* of November 13, 1898, recommends the administration internally every three hours of phosphate of sodium in doses of one drachm and asserts that this treatment causes a cure in twenty-four hours. Locally the following prescription, which is a favorite one in this country, is also suggested:

℞ Calamine and oxide of zinc, of each 1½ drachms;
Carbolic acid, 30 minims;
Lime-water, 2 ounces;
Rose-water, 4 ounces.
To be used externally.

If the patient is a child the quantity of carbolic acid named above is usually decreased.

The phosphate of sodium is particularly useful in those cases of urticaria which have their origin in gastrointestinal disturbance.

Another treatment of urticaria quoted by the same journal is the injection of solutions of bicarbonate of sodium into the rectum. The formula which is employed is as follows:

℞ Bicarbonate of sodium, 5 drachms;
Wine of opium, 30 minims;
Boiled water, 1 pint.

These injections are given in the quantity of four ounces every few hours.

COCAINE SOLUTIONS.

The *Journal des Praticiens* states that JONAS has proved that aqueous solutions of hydrochlorate of cocaine do not have to be sterilized by heat for their preservation if one centigramme of salicylic acid is added to each ten grammes of liquid. A similar preparation is recommended by the British Pharmacopœia composed of

Hydrochlorate of cocaine, 15 grains;
Distilled water, 2 ounces;
Salicylic acid, 7 grains.

GALL-STONES IN THE COMMON DUCT CAUSING SIMPLE INFECTIVE CHOLANGIOITIS.

The Lancet of December 3, 1898, contains a paper by HALE WHITE on this subject, in which he says something of its treatment. He does not think that in England there ought to be much difficulty about diagnosis from most other diseases, but in countries where severe malaria is common, and especially where it makes the patients yellow, the diagnosis may be very difficult, for the paroxysms and shiverings which characterize the disease under discussion very closely resemble ague, and, indeed, the diagnosis has sometimes been only satisfactorily made after finding the malarial parasite in the blood. But it may be very difficult to tell whether the gall-stone is setting up merely a simple infective cholangioitis, suppurative cholangioitis, or portal pyemia, for the diagnosis will rest upon the correct estimation of the severity of the symptoms. A very good example of this difficulty occurred in a woman, aged sixty years, whom the writer saw with Mr. A. G. Wells. She had rigors, an irregular high temperature, jaundice, a tender liver, and was desperately ill. The position was explained to her friends, and in the faint hope that it might turn out to be simple infective cholangioitis and that it might be possible to remove a stone, Mr. Arbuthnot Lane opened the abdomen, but could not reach the common duct because the parts were so matted from old local peritonitis due to gall-stones. At the post-mortem examination the writer found the liver studded with pyemic abscesses, a stone in the common duct, the biliary passages inflamed, and the lining membrane in places gangrenous.

The treatment of the patient the subject of this lecture gave rise to much discussion. Many urged that if the reporter thought there was a stone in the common duct setting up simple infective cholangioitis, he ought to have suggested an operation, but the following reasons prevented his doing this. If the case had been portal pyemia or suppurative cholangioitis, both of which were possible, an operation could do no possible good; if, on the other hand, the case were one of simple infective cholangioitis, we could safely wait to see what course the malady would take, for this disease is very chronic, and, badly off as patient was, she never, as far as her general strength went, appeared to lose ground. Then, too, it is a very difficult operation, especially when the liver is very large, to remove a stone from the common duct. In the case mentioned matting prevented Mr. Lane from even reaching the common duct. Out of Dr. Osler's eight cases two were operated upon and both died. Waring quotes Jourdan, who says that out of seventy-two cases operated upon and published up to 1895 twenty-

two died, and when we remember the inevitable tendency for more successful than unsuccessful cases to be published, that represents a mortality of about fifty per cent. Then, again, gall-stones are usually multiple, and even if we remove the offending one and any there may be in the gall-bladder, others will probably be formed later and passed down the duct. So that while the writer would most certainly not say that operation is never desirable, it is very important that we should hesitate for some time before embarking upon such a very difficult and dangerous operation. Probably we never ought to do it if the patient is keeping her ground, for there is always the possibility that she may pass the gall-stones into her duodenum. That fortunate result occurred in the writer's case, and owing to the size of the stones she has passed it is possible that her common duct is now sufficiently large to admit of the passage of subsequent stones, and as she wrote White recently that she appeared to be in good health and able to be up and about at her household duties, it is seen there is justification in not having advised operation. Since she left the hospital she has passed one other gall-stone without much difficulty. The course adopted of relieving pain, keeping her bowels open, and maintaining her strength appears to be justified by Dr. Osler's figures, for of his eight cases, two died after operation, two died from the effects of long-continued jaundice, three recovered without operation, and one passed out of observation.

To sum up, while the writer is far from saying that we should never advise operation, we should always watch the case before advising it, and not advise it if the patient is not losing ground.

THE TREATMENT OF ANEMIA DUE TO CONSTIPATION.

Dr. VAN VALZAH (*Medical News*, Dec. 10, 1898) thinks the treatment should be specific. He considers that the most important thing in the treatment of constipation is the recognition of its cause. This is often in the stomach. In thirty cases examined chemically by him recently he found absence of all stomach secretion, though absolutely no symptom pointing to stomach trouble had been complained of. There was only diarrhea, and no wonder, since food was being passed on to the intestines in an absolutely unprepared state. Hypersecretion, especially hyperchlorhydria, led to constipation. For these cases Carlsbad salts is the very best remedy. They are purgative and also alkaline, and used for two or three weeks they give excellent results. Milk of magnesia is the next best remedy, and calcined magnesia might be employed with good results at times. Myasthenia of the stomach with failure of motility and dilatation, indicated by the well known splashing sounds, is often accompanied by myasthenia of the bowels. In these relaxed conditions with muscular degeneration there must be no laxatives used; they will only make matters worse; tonic, not irritant, treatment is required. After the stomach the liver should be thought of. If the stools are pale in color calomel in minute doses should be given—one-twelfth or one-fifteenth of a grain frequently repeated. When the trouble is in the small intestine the prominent symptoms are an increase in gas, a burning feeling, a sense of unrest, of oppression referred to the abdomen, and finally the presence of indican in the urine. This last is important. Water he thought of the greatest importance. Not enough water is drunk, especially in the cities, and two to six glasses of it should be prescribed between meals. This is often enough of itself to overcome the tendency to constipation. Of drugs he had found that rhubarb gives good results and does as little harm as possible. In myasthenic states particularly the tannic acid of the rhubarb tones up the muscular coat of the intestines. Of course, it should not be given to such an extent as to produce loose stools, as it will then inevitably be followed by constipation.

In spasmodic states of the intestine, of which ribbon-like stools is the pronounced symptom, some of the antispasmodics are to be used—for instance, hyoscyamus in large doses, one to one and a half grains, or even to the production of slight toxic symptoms. Cascara when properly employed is an invaluable drug. Every one should have some fixed time when they go to stool. This should be when they are at leisure. It may be at any time—morning, noon, or night. The cascara should be given not three times a day as is often done, but in one dose so as to act at the desired time. The fluid extract of Parke, Davis & Co. has given him the best satisfaction. The dose must be decided for each patient and must be just enough to produce a formed, not a loose, stool. After ten days to two weeks the dose may be lessened by a drop or so every third night, not oftener,

and thus the patient gradually brought to do without its assistance.

As to fruit it does good as long as it does not increase gas formation, or produce burning feelings or diarrhea. If it occasions any of these symptoms it is not doing good.

THE EMPLOYMENT OF ICHTHYOL IN THE VULVAR PRURITUS OF PREGNANT WOMEN.

The *Journal des Praticiens* quotes DOISEY as having employed this substance in this condition with great advantage after other methods of treatment had failed, as, for example, the use of chloralized water, carbolic acid, corrosive sublimate, menthol, and similar substances. The strength of the ointment used was about two drachms to the ounce.

EPISTAXIS: A SIMPLE METHOD OF TREATMENT IN SOME CASES.

ROCHE (*British Medical Journal*, Dec. 10, 1898) states that when astringents and other appliances are not at hand, the trial of the application to the back of the neck of very hot poultices is found useful in checking nosebleed. Linseed meal may be used to make the poultices, but any other heat-retaining material would do equally well. The *rationale* of the effect of the method is the effect produced on the vessels through the vasomotor system.

Many years ago Roche was asked to see an old lady whose nose had been bleeding for three hours. He found her very weak, and the bleeding not severe, but continuous. Local pressure and astringents had been tried without success. A very hot linseed poultice was applied to the back of the neck, and the bleeding at once stopped. The bleeding in her case was evidently due to degeneration of the coats of the blood-vessels; she had a rigid radial artery.

THE NON-MEDICAL TREATMENT OF CONSTIPATION.

A valuable article on this topic has been contributed by LOCKWOOD to the *Medical News* of December 10, 1898. He thinks that the diet suitable for constipation may be divided into three classes: (1) Fecal-forming food: Coarse vegetables, coarse bread, cereals. (2) Secretion excitors: Sugars—milk-sugar, honey, fruits, compotes, salts, especially NoCl. (3) Peristalsis excitors: Cider, buttermilk, fats, organic acids.

Coarse vegetables, such as spinach, Brussels sprouts, turnips, and carrots, should constitute a large proportion of the diet. To avoid irritation of the stomach it is well to have them prepared in purée form. To this class of foods must be added the coarse cereals. The breads should be of coarse texture and should be given one day old. Porous bread is to be preferred. A very good biscuit is Dohl's dyspepsia cake, somewhat dry, but if moistened with hot water or milk and eaten with a little sugar, really not unpalatable. One biscuit at night is often serviceable without other dietetic rules. As to whether the taking of water with the meals is of benefit is a mooted point. There is no doubt that a glass of cold water on rising in the morning is of great service in increasing gastrointestinal peristalsis, but during the meals it is the writer's opinion that little water should be taken. In general the drier the diet the greater the mechanical stimulation of the intestinal wall. This constipation diet, in its entirety, is indicated in atonic constipation alone. Whenever inflammation exists bulky foods must be excluded and reliance placed on other foodstuffs and remedies. This bulky diet is also contraindicated in cases of muscular insufficiency of the stomach, especially with gastroptosis, as the bulk of the food mechanically overloads the weakened stomach. In simple atonic constipation this diet, while theoretically indicated, can never be carried out in full severity by reason of objective disturbances (distention of stomach and intestines) and of flatulence. Such a diet, moreover, palls, so that meat and other articles of food must be allowed, to avoid monotony. This latter indication is most essential in neurotic patients, who require a varied diet. Care must be taken in all cases to exclude from the diet all constipating food. This is often overlooked. One glass of claret will neutralize, for example, the laxative effect of an entire meal. Tea must be freshly made and never strong.

It is not definitely proven whether the action of sugars is through the fermentation they undergo, producing butyric, lactic, and acetic acids, which increase intestinal peristalsis, or whether they act as do the salines, in producing a transudation of serum through the intestinal wall. Strauss and Boas incline to the latter theory. Certain it is that we have in this class of foodstuffs a very efficient means of combating constipation. Su-

gars are best given in the form of honey, milk-sugar, and fruit compotes. The simplest and best remedy the writer knows of is a tablespoonful of honey in half a glass of warm milk on rising in the morning. It very seldom disagrees or diminishes appetite for breakfast. Honey, jam, or marmalade may also be taken with the breakfast roll. Lactose (thirty cents per pound) is to be used instead of ordinary sugar for tea, coffee, and the like. Compotes of stewed fruit may be sweetened by it, and such a compote taken once a day at least. A very good combination is two parts of prunes and one of figs. Raw fruit he does not approve of. Huckleberries and cranberries are to be strenuously avoided. Diluted condensed milk may be used in place of ordinary milk.

Passing to liquids we have buttermilk, kumiss, and cider. Buttermilk is much lauded by German authorities, and has in the writer's experience proved very reliable. To secure good effects three glasses should be taken daily. Kumiss has a similar effect, somewhat increased by the stimulating effect of CO_2 on gastric and intestinal peristalsis. Kephir is not obtainable in our markets. White wines may be allowed in moderation.

Fats are indicated in large quantities, but their administration is somewhat difficult. The simplest form is to give butter, one-eighth to one-fourth pound daily. Cream seldom agrees. Cooked fats are of course injurious. In debilitated subjects cod-liver oil may be an excellent adjuvant. In young subjects the addition of fat to the diet may alone be sufficient.

Measures strengthening the abdominal wall consist of (1) massage, (2) abdominal gymnastics, (3) electricity, and (4) abdominal supports. Except in cases where constipation was dependent upon a neurasthenia, for which latter condition general, not local, massage proved of value, massage has been disappointing. This may be contrary to the general impression, but after extended and repeated trials the writer has abandoned a large measure of his previous hope in its efficacy. If ordered it should be given by an experienced operator. Massage is contraindicated in all inflammatory and spastic conditions.

Abdominal gymnastics are more serviceable. General exercise, especially bicycling and golf, are of great service, together with local exercises, such as the raising of the leg slowly to the vertical position and dropping it to the bed again.

Electricity has been a grievous disappointment to the writer. He has used faradism in a variety of ways, usually one broad electrode over the umbilicus, and a smaller one to the left of the spine at the level of the twelfth dorsal vertebra, but he has never been convinced of its utility. The results, however, are so good in atonic conditions of the stomach that he still continues hoping better things from it in intestinal work. Of galvanism he has not sufficient knowledge to speak. Lately, Boas has had great success in rectal faradism. One pole is inserted into the rectum; the other—flat electrode—is to be placed at various points over the colon. Boas claims brilliant success, and as he is a most conservative observer, great weight must be attached to his statements.

Artificial abdominal supports are indicated (1) in downward displacements of the stomach or colon; (2) in weakness of the abdominal wall or separation of the recti muscles. The supporter should always be adjusted before rising in the morning and worn continuously through the day. The most convenient apparatus is the Bardenhauer, made by the Pomeroy Truss Company, Fifteenth Street and Broadway, from the original Bardenhauer. In these cases the patient should be instructed to suspend the clothing from a corset-waist and not from the waist.

Hydrotherapy is a measure which must not be lightly passed over. The glass of cold water on rising has a well-known effect upon intestinal peristalsis, but its disadvantage is that it exerts a depressing effect upon gastric secretion.

The spinal douche Lockwood strongly recommends. While the patient sits in as hot water as can be borne, the spine is at first sponged with hot water, after which a pitcher of cold water is poured from a considerable height upon the back. Brisk friction should follow, and the hour of selection should be before breakfast. When the spinal douche cannot be given the patient may stand before two basins, one of hot and one of cold water, and alternately sponge the abdomen with the hot and cold. Such treatment is serviceable in atonic forms of constipation, but is contraindicated in inflammatory and spastic conditions.

Sedative remedies are indicated in conditions of intestinal spasm, a more frequent class of cases than is ordinarily supposed. In this type purgatives, massage, and bulky articles of diet are to be excluded, and a more soothing régime inaugurated. Atten-

tion should be paid to the primary cause, usually a hyperacidity of gastric contents. An efficient remedy in these cases, about which the writer speaks from considerable experience, is the Priessnitz Umschlag, or Neptune Girdle. Two thicknesses of flannel, large enough to cover the abdomen, are wrung out in hot water, covered by oiled silk, and applied to the abdomen at night by means of a binder. The soothing effect of a nocturnal bath is often of service. Small doses of sodium bromide and belladonna, preferably with chloroform water as a vehicle, may be necessary in obstinate cases.

Oil irrigations were first employed by Kussmaul, and are generally known by his name in German literature. The results personally seen in Boas' clinic and in the writer's own practice have been so brilliant that he is inclined to attach much importance to this form of treatment. A rectal tube of large caliber, with a large lateral opening, is introduced six to eight inches into the rectum, and from six to eight ounces of a bland oil allowed to enter slowly. Cottonseed oil free from rancid acidity is as satisfactory as olive oil, and is inexpensive. In Boas' and in Pick's clinics the patient assumes the knee-chest position. The author's modification of this is more agreeable to sensitive patients.

The patient receives the injection while in the Sims position, with the hips elevated on two pillows, and with the muscles well relaxed; he remains so placed for ten minutes, when the dorsal decubitus is assumed for ten minutes, after which the patient lies for ten minutes on the right side, the hips still being elevated. By this method the oil reaches throughout the entire length of the colon. No immediate results occur, as a rule, and the patient may go about his daily work, although the injection is to be given by preference at bedtime. In the great majority of instances the patient will have one normal movement for three to five successive mornings without straining. The action of the oil seems to be due to the fact that the intimate commingling of the oil with the feces prevents all further drying processes, thus markedly facilitating the outward passage of the feces, and in presenting a greater bulk to the expulsive efforts of the rectum. Pick recommends daily inspection of the stools and a repetition of the injection whenever the oil disappears from the feces. It is just as well, however, to rely upon clinical data, and to repeat the treatment whenever the effects of the previous injection have subsided. Ordinarily, every five days is sufficient. One great advantage of this method is that it may be used in atonic, spastic, and inflammatory conditions alike.

THE MANAGEMENT OF THE FEVER OF PNEUMONIA.

A very useful and practical debate on this subject has recently been held in the Section of Pediatrics of the New York Academy of Medicine, and is reported in the *Medical News* of November 19, 1898.

CHAPIN thinks that in our management of hyperpyrexia the first point is to avoid any measures that will secondarily have a bad effect, and thus hinder future chances of recovery. All depressing remedies come under this head, as, for example, most of the coal-tar derivatives. The only exception to this rule is the occasional administration of small doses of phenacetine in sthenic cases where there is pain and nervous restlessness. Cardiac stimulants, such as caffeine or camphor, are always added. When very high temperature keeps recurring, however, this remedy is not to be continued. Antipyrin, and especially acetanilid, should not be given under any circumstances. It is sometimes a great temptation to give these preparations, as they are easily taken and usually have a prompt if only temporary effect. The application of water is on the whole the safest and most satisfactory method of controlling dangerous hyperpyrexia. Much may be accomplished by a thorough application of cold to the head. This not only reduces the temperature, but relieves to a certain extent its deleterious effect upon the brain and nervous system. In order to be effectual the cold to the head must be thoroughly and continuously applied. The ordinary method of applying cool cloths is not sufficient. Finely cracked ice placed in bladders, from which the surplus air is expelled, may be molded around the head, especially at the vertex and occiput. Chapin has found ice poultices, made by mixing finely cracked ice with flaxseed meal in oiled silk, placed around and on top of the head, to be most valuable. By this means a steady application of cold can be conveniently applied. If this is not accomplished, the next resource is the application of compresses directly to the chest. The child is stripped, wrapped in a blanket, and placed upon a table. A stimulant is given and the feet are placed in contact with hot bottles.

A compress sufficiently large to surround the chest is plunged into water at a temperature of from 70° to 95° F., and applied to the chest. This is changed every ten or fifteen minutes until the desired result is obtained. In order to disturb the child as little as possible, the nurse is directed to apply the compress from the front, tucking in the ends until they meet in the back, in this way avoiding much movement or inconvenience to the child. The exact temperature of the water in a given case must be determined by the condition of the child, and the temperature to be combated. A needless amount of cold is often employed. If the temperature is 105° F., the water may be 95° F., or even warmer, at the start. A frequent application of the compresses will often produce results at this comparatively high temperature. If the compresses are allowed to remain unchanged, they become warm and the effect is lost.

If the temperature does not yield, the temperature of the water can be lowered until it reaches 70° F., 60° F., or even lower. It requires some careful watching to determine exactly how low the temperature of the water may be kept. The addition of about one-fourth part of alcohol sometimes increases the value of these compresses. This was well exemplified in a case recently under the author's care. An infant fifteen months old with an extensive bronchopneumonia had a temperature ranging from 104° F. to 105° F. As the symptoms were somewhat urgent, the infant twitching as in beginning convulsions, a compress at 60° F. was applied about the chest. The child became slightly cyanotic under the compress, without much reduction of temperature. It was then removed and stimulants given. The following day compresses at 70° F., with the addition of one-fourth part alcohol, were applied, and the child reacted well to this treatment; the temperature soon dropped to 102° F. So long as the feet and hands are kept warm the cool compresses may be applied, but chilliness of these parts is a contraindication to cold. When the temperature is reduced to 102° or 103° F., the compresses should not be renewed, but are kept in position in case the temperature ascends again to an unsafe degree. In the meantime they act in the same way as a cotton-batting jacket. Chapin has sometimes kept a child in this position for several days, applying cold when indicated by a hyperpyrexia, which tends to recur. This clinical fact is probably explained by a mixed infection, and not the pneumococcus alone, being responsible for the disease. Wide variations in the temperature point to the former condition.

The deepened respirations ensuing upon the application of the compresses have a favorable effect upon the pneumonic circulation. As a rule children do not object to the compress when applied in the manner here suggested, the principal point being to avoid too great a degree of cold and to apply the compress with as little disturbance as possible to the child, keeping the extremities warm.

Although Chapin has occasionally employed the tub he rarely uses this method now in combating hyperpyrexia. The fright of the child and the exhaustion which accompanies the tubbing contraindicate its use. He believes that all the good effects which may be obtained by the use of the tub may be had by a proper use of cool compresses. In case of cyanotic children, with prostration and hyperpyrexia, he has employed the warm bath (100° F.) with friction of the surface with good results.

Continuing the debate HOLT spoke of the treatment of pneumonia in very young children. By way of summary he lays stress upon the following points in the treatment of pneumonia in this class of patients:

No depleting measures are ever admissible.

Hygienic treatment, including fresh air, proper feeding, and intelligent care, is of the utmost importance.

No unnecessary medication should be permitted.

Many annoying symptoms may be relieved by local treatment, such as the cough by inhalations, pain by counter-irritation, restlessness by the ice-cap or sponging.

Stimulants should be deferred until demanded by the condition of the pulse.

High temperature is much more safely and effectively controlled by the use of cold than by drugs.

Greater caution is necessary in the use of powerful stimulants than is generally observed.

Rest is quite as important as in other serious diseases.

Dr. SIMON BARUCH next discussed the value of hydrotherapy in the pneumonia of children. He said that the short time at his disposal would not permit him to offer more than a general outline of the hydriatic procedures which he had found useful, and to inculcate the necessity of using each with due regard to its rationale. In children under

three years, the tub-bath with continuous friction is most useful. If the body temperature is between 101° and 103° F. a tub is placed upon two chairs, near the bed, and half filled with water at 95° F.; and the trunk is gently submerged and held by pressing the fingers upon one shoulder (not upon the chest). Ice-water is now added, without being allowed to touch the child's body, until 85° F. is reached; friction over the entire body is maintained for five minutes.

This is a good initiatory procedure; it may be repeated every four to six hours with advantage so long as the temperature does not fall below 101° F. When the body temperature is above 103° F. the bath water may be reduced to 80° F., very rarely lower, and never so low as some bath temperatures mentioned. The duration should be prolonged to eight minutes; in this event it requires repetition every four hours. In the intervals between the baths a compress, covering the entire anterior part of the trunk, consisting of three folds of old linen or a towel (without fringes), wrung more or less out of water at 70° F., and secured by a flannel bandage placed around the body, may be applied with advantage every hour when the patient is not asleep. This procedure not only fulfils every indication, but it also renders the demand for bathing less frequent.

When delirium and stupor are present, when cyanosis is pronounced, and cardiac action embarrassed, when the bronchi are clogged with secretions, increasing dyspnea, in these conditions, which are so frequent in bronchopneumonia of children, the full bath may be changed to dips into water at 80° F. or less for a few seconds, repeated two or three times in rapid succession every hour, the temperature, duration, and frequency being in accord with existing conditions. An excellent procedure in these desperate cases is the affusion with basins of water at 60° F. or less, poured over the head and shoulders of the patient, who is held semi-recumbent in a tub containing water at 100° F. Rapid drying and friction are demanded after these procedures, because the patient's reactive capacity is below par. Body temperature is not an index for the cold affusion, which should be given in these desperate cases even if the temperature is low. We aim to stimulate the central nervous system and thereby improve the circulation, respiration, and expectoration. When the child is restless, an occasional full bath at 95° F., prolonged for ten minutes, will prove soothing.

In most children over three years of age full baths are too disturbing. A younger child will become quiet as soon as it experiences relief and comfort, while the older child will continue to struggle and scream Whenever the child is tractable he prefers the full bath, but he insists upon it in every case when other treatment proves inadequate. Having observed that the toxins of pneumonia endow the patient with less resistance to cooling procedures than do the toxins of typhoid fever, he avoids full baths colder than 75° and longer than eight minutes in the former disease. In the management of pneumonia patients larger reductions of the body temperature are not the prime object.

In most children above three years of age the chest compress consisting of three folds of old linen so arranged by slits in the axillary portion as to fit snugly around the chest down to the navel and held in position by a flannel binder, is the most useful procedure. The linen is wrung out of water at 65° to 70° F., more or less thoroughly, according to the temperature and general condition, and the flannel bandage is pinned over it. (Oiled silk, which the nurse will recommend for protection of the bed, counteracts the object of this compress and converts it into a poultice.) It is repeated every hour and discontinued when the temperature reaches 100° F.

These are the simplest and most useful hydriatic procedures in the pneumonia of children. The time limit precludes their more detailed description.

Baruch concluded with a few words of warning to the effect that spontaneous reaction must always be provided for by friction during the bath so that there should be no need for warmth and friction after the bath. Whenever the patient becomes very chilly, with chattering teeth and cyanosed face, we may conclude that the procedure has been faulty and must be modified. A few nights ago Baruch saw a case in consultation with a well-informed practitioner who feared water-treatment because the patient had become cold and cyanotic under a wet pack. Inquiry elicited the fact that the patient had been simply wrapped in a cold, wet sheet (no definite temperature). She was not covered snugly by blankets, as is demanded by the technique of the wet pack, in order to promote reaction.

This incident illustrates the importance of correct technique. Reaction is always furthered by rubbing during the procedure, or by protection against evaporation. It may be enhanced, also, by modifying the temperature of the water, not, as is often erroneously done, by elevating it, but by lowering it within reasonable limits, and shortening the procedure. It is a law of hydrotherapeutics that low water temperature, strong mechanical impact, and brief duration promote reaction. Higher bath temperatures are more agreeable and, if the procedure be prolonged, afford greater temperature reduction, but do not produce the stimulating, antifebrile effect of a correctly adapted cold procedure.

CANCER OF THE TONGUE.

H. KUTTNER (*Quarterly Medical Journal*, October, 1898; *Beiträge z. Klin. Chir.*, Bd. xxi, Heft 3) has conducted several experiments upon the dead body with regard to the anatomy of the lymph vessels and lymph glands of the tongue. His conclusions are as follows: The tongue is extraordinarily rich in lymphatics; the lymph from one-half of the tongue flows to the glands on both sides of the neck; the lymph vessels of the overlying mucous membrane and that of the deeper layers have the same outlet; the lymphatics are very numerous and form many anastomoses; the lymph glands of the tongue are the submaxillary glands, the deep cervical glands over the jugular veins, small lingual glands, and glands in the musculature of tongue which are placed between the genioglossi muscles. There are also direct lymph connections between the tongue and the supraclavicular glands. The final branch of the deep cervical glands can, at least on the left side, open directly into the great veins. The submental glands, the glands at the lower end of the parotid, and the superficial cervical glands do not receive lymph from the tongue, but one observation showed that they were connected with the deep cervical and submaxillary glands.

The salivary glands may become infected by direct invasion from contiguous lymphatic vessels or glands, and they may become infected by the blood-stream. In lingual cancer, as in mammary carcinoma, the glands should be looked upon as infected and completely cleared out. The submaxillary, submental, and deep cervical glands on both sides should be removed, and even clearing out should be extended to the clavicle. If enlarged glands can be felt in the supraclavicular fossa, they should be removed.

Küttner recommends the following incisions: a median cut running from the chin to the sternum, and a somewhat concave incision running from the angle of one jaw across the hyoid bone to the angle of the jaw on the opposite side. Four flaps are thus formed which can be turned backwards.

ANEURISM OF THE UTERINE ARTERY CURED BY LIGATION OF THE INTERNAL ILIAC ARTERY.

MUNDÉ (*Medical Record*, Dec. 31, 1898) reports the case of a patient who, after having an abscess in the left vaginal vault opened, developed an aneurism the size of a hen's egg, close to the cervix and extending slightly down on the left vaginal wall. He made a four-inch incision in the left semilunar line, opening the abdomen in Trendelenburg's position, and after some difficulty in isolating the artery, especially from the ureter, which crosses it and lies close to the inside of it, ligated the internal iliac artery. Pulsation of the aneurism ceased entirely. The recovery was uneventful.

RETROPERITONEAL HERNIA: WITH A CASE OF RECOVERY AFTER OPERATION.

TUBBY (*Medical Press*, Sept. 7, 1898) says that the varieties of retroperitoneal hernia have been described by Treitz under three headings: those into the fossa duodeno-jejunalis, where a pouch of peritoneum is sometimes met with behind the inferior mesenteric artery as it curves towards the left side; into the fossa intersigmoidea; and into the fossa subcæcalis. More recently the subject has been amplified by Mr. C. B. Lockwood. A case of retroperitoneal hernia into a pouch behind the superior mesenteric artery is found described in the eighteenth volume of the Transactions of the Pathological Society. The following case was one of hernia into the fossa duodeno-jejunalis behind the inferior mesenteric artery.

On February 27 of this year (1898) Tubby was called to see Mrs. W., aged sixty. Details of previous history are as follows: Eight years ago she had a definite attack of gall-bladder colic and then passed several gall-stones. They were multifaceted. A week before operation she was doing a good deal of lifting. On February 23 Dr. Burrell was

called in to see her for what she described as internal chill; she complained of a dull aching pain with some shivering. The temperature was normal; pulse 90, full, and regular. The pain was specially referred to the gall-bladder and was of a dull, gnawing character. Slight trace of albumen in urine, which might have been due to chronic cystitis. On February 25 she was given pil. hydrarg., gr. ij, and tinct. opii, ♏ x, every four hours for pain. She felt better, but her bowels were not open, so she was given half an ounce of castor oil, with no result. At 5 P.M. on February 26 she began to complain of violent pain, and the abdomen was noted to be much distended and hard, with distinctly increased dulness in the right hypogastric region. The pulse was very quick and not of good quality. There was no vomiting, but some nausea. Mrs. W. said that she had had three attacks of pain previous to last attack, but not so severe, and was inclined to put it down to "liver trouble." When Tubby saw her she complained of intense pain, especially in the right iliac fossa. There was great distention of the lower part of the abdomen; some dulness in the right flank; the legs were not drawn up; pulse 102 and regular; breathing costal. Seen again at 11 P.M. same night, the abdominal distention had doubled, the pulse was thready and irregular, the pain and tenderness were still more marked, and she had vomited.

It appeared that the symptoms might arise from impacted gall-stones, so operation was immediately performed. When the abdomen was opened numerous distended coils of intestine appeared, and there was a considerable amount of flaky fluid in the flanks. The whole length of the small intestine was carefully examined for impacted calculus, but none was found. In the course of examination a retroperitoneal hernia into the fossa duodeno-jejunalis was discovered. There was a coil of small intestine firmly lodged in it, being derived from the lower part of the ileum, within one and a half feet of the ileocæcal valve. The portion was withdrawn with very considerable difficulty, as the intestine was very much distended and dark in color. The peritoneal fluid was sponged out, the cavity was rendered dry, and the wound was sewn up. The after progress of the case was uninterruptedly good. On March 1 she had two evacuations, and the wound had almost closed by primary union. Her subsequent course was extremely good. It was noted at the time of operation that the gall-bladder was small and hard, and appeared to contain many calculi; but the patient's condition was such that it was not advisable to perform a cholecystotomy on account of the danger of collapse.

The points of interest in this case are the nature of the history and the rapid onset of symptoms simulating impacted gall-stone. The fact that the retroperitoneal hernia involved the lower part of small intestine accounts for the extremely rapid distention of the abdomen and the signs of absolute obstruction. Another point of interest was the great difficulty experienced in withdrawing the distended intestine from behind the inferior mesenteric artery; great gentleness and patience had to be exercised in so doing. There can be no doubt that the promptness with which operation was consented to, and was carried out, was the important factor in saving her life.

A FURTHER CONTRIBUTION TO THE SURGERY OF STONES IN THE BLADDER, BASED ON A RECENT SERIES OF CASES IN HOSPITAL AND PRIVATE PRACTICE.

REGINALD HARRISON (*The Lancet*, Nov. 12, 1898) says that the cases have all been operated upon either in hospital or private practice during the interval of 1890 to 1897, and include every instance thus dealt with during this period. Six of the 101 litholapaxies terminated fatally: (1) A man aged sixty-five, operated upon successfully on the first occasion, died on the third day after a repeated operation, which was performed thirteen months subsequently. The kidneys were extensively involved in suppurative nephritis. The stone was a phosphatic one weighing close on two ounces. Repetition of the operation had clearly been delayed too long. (2) A man, aged sixty years, died on the twenty-eighth day after operation from chronic suppurative nephritis and syncope. (3) A man, aged seventy-two years, died on the sixth day after operation from pelvic cellulitis, probably due to suppuration within a vesical sac or pouch. (4) A man, aged fifty-four, was operated upon successfully on the first occasion, but died after a similar operation, repeated fifteen months later, from suppurative nephritis caused by a chronic urethral stricture which had gradually contracted. Had a perineal lithotrity with division of the stricture and drainage of the bladder and ureters been practiced on the second occasion he would have had a

better chance of recovery. The patient derived so much relief from the first operation that he wished it repeated on precisely the same lines. (5) A man, aged sixty-two years, died on the tenth day after operation from extensive suppurative nephritis consequent on urethral stricture of some years' standing. He was much exhausted from many weeks' traveling under painful circumstances. (6) The remaining fatal case was that of a man aged seventy-six years. He died on the twenty-ninth day after what promised to be a very successful operation. A large urate stone was crushed and evacuated, the dried fragments of which weighed 975 grains. The prostate was much enlarged. The calculus had previously caused him great pain, and the operation afforded complete relief from this. He died from senile decay.

Of the 101 different persons included in the table and who were subjected to litholapaxy, twenty-three were known to have one or more recurrences, for which they were treated on subsequent occasions. In these twenty-three persons who had recurrence of stone after crushing litholapaxy was repeated once in thirteen of them, twice in two, thrice in one, four times in one, five times in one, six times in one, nine times in two, and ten times in two, making a total of 174 litholapaxies in 101 individuals, with six deaths.

In several of the repeated operations the proceeding resolved itself into occasionally removing from the bladder calculous concretions with the aid of the lithotrite and aspirator, much on the same principle as a dentist removes tartar which has collected about the irregularities of the teeth. These occurred for the most part in elderly men with atonic bladders who were more or less dependent on their catheters, and possessed but little power of voluntary expulsion. To submit these cases to a cutting operation for the purpose of removing concretions and draining the bladder could not be recommended, as during intervals, sometimes extending over many months, they enjoyed fair, and even active, health.

As in records by other surgeons which have been recently published, mortality connected with all these proceedings had been reduced to so small a percentage as to assimilate them in this respect to those which we are accustomed to speak of as minor or non-fatal operations. The period of convalescence has also been considerably lessened. In both of these important respects there has been generally a remarkable diminution.

Excluding three or four young persons about or below puberty, the average age of the patients was over sixty-two years. Nor is it difficult to understand why this should be. Enlarged prostate not only often renders the act of complete micturition mechanically difficult and impossible, but it furnishes favorable local conditions for the growth of stones, which, having descended from the kidney, are thus detained there. Under such circumstances the male bladder may not inaptly be regarded as a bedding-out ground for renal calculi. Many instances in this series serve to illustrate this and to show how gravel and calculi which were formerly expelled naturally ceased to be so as soon as the prostatic age had been reached. And what applies to kidney calculi and concreted crystals is equally true of other foreign bodies which a chronically inflamed bladder is apt to contain. That an incomplete removal of the débris after a crushing operation may be responsible for some recurrences there can be no doubt, but not to the same extent as some are disposed to consider. A red urate or a black oxalate stone is sometimes supplanted by a pure white phosphate. More than one recurring calculus which has been removed had a fixed origin on the rough cicatrix of a previous suprapubic cystotomy; two were formed on centers furnished by the remains of silk sutures employed in the latter operations, and others have had their origin on nuclei provided by shreds and sloughs from an inflamed bladder. Further, the sacs and pouches of bladder distorted in this way by prostatic obstruction furnish hiding-places for débris which are almost inaccessible. In view of such obstacles and to prevent recurrence taking place much importance must be attached to the thorough clearance of the bladder in the first instance, to the subsequent management of the case after it has left the hands of the operator, and to such measures as have for their object bringing about shrinking or atrophy of the enlarged gland.

The lithotrites employed should be capable of rapidly and completely breaking up the stone without pounding it too much into such masses as a pestle and mortar produce. The jaws of the lithotrite whilst protected should be able to cut up stones such as the phosphates, which though soft and friable are apt, when mixed with the mucus from the bladder, to run into tough pultaceous pieces which may readily be left behind and form nuclei for further concretions. Hence the

powerful fenestrated lithotrites are, as a rule, to be preferred.

In cases complicated with prostatic enlargement, and where the patient is, as is often the case, more or less dependent upon the catheter, the bladder should be attended to for some time after operation. Sufficient importance is not attached to this point. If these cases were carefully looked after three or four months after the operation, recurrences would be far less frequent. At least once a week the bladder should be washed out with the metal catheter and aspirator, as used in connection with the operation, in addition to such irrigation and catheterism as the patient can himself employ when necessary.

The effect of silver nitrate as a local application in cases of chronic cystitis with prostatic enlargement where there is a tendency to produce phosphatic concretion is well known. There was a case some years ago which bears importantly upon this practice—that of an elderly man who when suffering from residual urine broke a gum-elastic catheter whilst passing it and left several inches of it in the bladder. The general condition was such that no immediate steps could be taken to remove it, and it was therefore advised that the bladder should be washed out twice a day with a weak solution of silver nitrate. This was done, and ten days afterward the patient allowed Harrison to extract the broken portion entire with the smooth-bladed lithotrite. Neither on the piece of the catheter nor within the bladder was any sign of phosphatic concretion. The nitrate, as do other salts that may be artificially introduced into the bladder, prevented molecular coalescence taking place, as the urine was alkaline and offensive during the ten days the catheter remained in the bladder.

Vasectomy was resorted to under these circumstances in instances where in addition to recurrence of stones serious symptoms of prostatic obstruction existed. The stone having been removed in the usual way by the lithotrite and aspirator, one vas was resected, and seven days afterwards the remaining one was treated in the same manner, about an inch of each tube being taken away. The small wound usually heals under a collodion dressing in forty-eight hours.

Further experience and a still more extended period of observation will warrant the conclusion that the diminishing number of recurrences in this series was due not entirely to any additional pains taken in the first instance in the removal of stone, but partly also to the use for some time after of the evacuating catheter and wash-bottle, and to the employment of vasectomy on recurrence in suitable cases, where there was much prostatic enlargement.

The chief points in favor of the selection of perineal lithotrity appear to be these: (1) It enables the operator to crush and evacuate large stones in a short space of time; (2) it is attended with very small risk to life as compared with other operations, such as lateral or suprapubic lithotomy, and is well adapted to old and feeble subjects when for any reason crushing is inadmissible; (3) it permits the operator to wash out the bladder and any pouches connected with it more effectually than by the urethra, and the route is shorter and the evacuating catheters employed are of much larger caliber; (4) the surgeon can usually ascertain, either by exploration with the finger or by introduction of forceps into the bladder, that the viscus is cleared of all débris; (5) it enables the surgeon to deal with certain forms of prostatic outgrowth and obstruction complicated with atony of the bladder in such a way as to secure not only removal of the stone but restoration of the function of micturition; and (6) by subsequent introduction and temporary retention of a soft-rubber drainage tube the states of cystitis due to retention of urine in pouches and depressions in the bladder wall are either entirely cured or are permanently improved. To lock up unhealthy ammoniacal urine after a lithotrity in a bladder which cannot properly empty itself is to court formation or recurrence of a phosphatic stone. Hence it is well suited to some cases of recurrent calculus. He has never known a wound to remain unhealed except in those instances where for some reason or other it has been desired to construct a low-level urethra.

Harrison is not much in favor of suprapubic lithotomy as a means of removing large calculi from elderly males. In younger persons it is much more safe and there is less objection to it. The mortality is considerable, as shown by Guyon, in males over fifty years of age. The cicatrix which is left in the bladder sometimes greatly interferes with complete micturition, and in two instances a rough scar was shown, on exploration, as forming a holding-ground for phosphatic concretions. In one of these instances the scar has been excised with advantage.

Nitrous oxide gas and ether were the anes-

thetics usually employed throughout the whole series of operations. In elderly and debilitated persons with weak hearts the stimulating effect of ether in improving circulation was often most marked; nor were any casualties noted in connection either with instruments used or parts operated upon. No serious hemorrhage was encountered where incisions were necessary, and after the litholapaxies it was rare to find the urine tinged with blood forty eight hours after operation. Any cystitis which was present at the time of operation usually rapidly subsided after removal of the stone, and no trouble with elevations in temperature, rigors, or fever complicated recovery.

As to sounding for stone, it is much better for stone to be removed where this is practicable on the occasion when it is first detected by sound and the diagnosis is made. This practice predominated in this series. Where the prostate is large stones grow up like mushrooms in the pouch-like space between the large prostate and the back of the bladder, and make as it were nests for themselves. Where there are two or three they often become fitted to each other like tessellated tiles, and if this arrangement is accidentally and suddenly disturbed most acute cystitis is apt to follow. Most of us know how much discomfort a displaced piece of tartar will cause in the mouth until it is completely removed. Even when they are delicately and lightly touched with the sound the stones may get out of gear with their bed, and if urine finds its way underneath them to some unaccustomed spot, an acute cystitis may be aroused in the interval between the detection of the stone with the sound and its removal by the lithotrite.

In conclusion, this series of cases may serve to illustrate: (1) conditions under which the surgical treatment of stone in the bladder, in the adult male particularly, have to be undertaken, at all events in this country; and (2) various operations which may be selected for its cure or relief. Of course the relative proportions of the latter to each other will vary in some degree, and it is only reasonable that this should be expected.

ON EXCISION OF THE GASSERIAN GANGLION FOR TRIGEMINAL NEURALGIA.

J. HUTCHINSON, Jun. (*British Medical Journal*, Nov. 5, 1898), notes that there are at present practically only two methods of approaching the ganglion: one from below—that is, through the base of the skull after resection of the zygoma and some parts of the lower jaw (Kocher, Rose, etc.), which may be termed the pterygoid route; the other from the outer side through the temporal fossa (the temporal route). Between these two methods the time has come for a definite decision to be made. The temporal route possesses the following amongst other advantages:

1. A short skin incision and comparatively small division of muscles; the cicatrix will probably be so hidden by the scalp as to be found with difficulty. Beyond some slight flattening from wasting of the temporal and masseter muscles, there is no disfigurement whatever resulting in the face.

2. The ganglion can be clearly exposed with but slight risk of opening the subarachnoid space.

3. The only part of the skull divided is the squamous portion of the temporal bone.

4. There is no risk whatever of making the wound communicate with the Eustachian tube and pharynx.

On the other hand, against the first method may be urged the following considerations:

1. A wound involving the whole side of the face, and necessarily leaving a disfiguring scar.

2. Division of the zygoma, with the chance of its necrosis and loss of the coronoid process.

3. Severe bleeding from the pterygoid plexus of veins and perhaps from the internal maxillary artery.

4. Difficulty in finding the foramen ovale (the sphenomaxillary fissure was mistaken for it in Rose's third case), which may be completely hidden by a ridge of bone on the side of the sphenoid bone (the pterygoid spinous ridge).

5. The trephine may readily open the Eustachian tube, and thus render septic infection from the pharynx more likely to occur. In two out of six of Rose's cases this happened, and in one the patient died of septic meningitis.

6. The dura mater may readily be opened —in view of No. 5 a serious complication. The internal carotid artery is also in danger.

7. The ganglion cannot possibly be clearly exposed and removed by this method, and in many cases fragments only have been got away by the unsurgical procedure of scraping the nerve with a scoop.

Necrosis of the zygoma has followed in some cases, and for this reason it would seem

advisable to add to the temporal method a modification proposed by MM. Quenu and Hartmann—namely, division of the zygoma at both ends and removal of the greater wing of the sphenoid, as far inwards as the foramen ovale. This very extensive removal of the whole floor of the middle fossa seems to offer no compensating advantage.

After cutting through the squamous portion as low as the floor of the zygoma, the surgeon may perhaps encroach a little upon the actual base of the skull, but it is quite unnecessary to give a separate name to such a slight modification. Needless complexity has been introduced by attaching a long string of surgeons' names to trifling varieties of skin incisions, or division of additional portion of bone.

Having indicated the belief that the subdural method through the temporal fossa is the only satisfactory way of removing the Gasserian ganglion, some special points of that method deserve notice. It is undoubtedly a difficult and long operation, the difficulty depending on the depth of the ganglion from the surface (at least two inches), the venous oozing, and the degree of firmness of adhesion between the ganglion and the dura mater, forming the so-called cavum Meckelii.

Mr. Horsley finds that it is quite possible to excise the ganglion without dividing the meningeal artery, and this is a real advance in the technique of the operation. However, should it be accidentally wounded and cause troublesome arterial bleeding, the best plan would be to plug the foramen spinosum with a little wedge of bone. As regards the removal of the ganglion itself, there must be no random cutting; the superior and inferior maxillary division must be thoroughly exposed and divided just above the foramina rotundum and ovale, then the root trunk must be made out and severed. Drawing the ganglion outwards will enable the surgeon to deal with the ophthalmic branch without danger to the cavernous sinus, the carotid, or the oculomotor nerves. It is of interest to note that in several of the recorded cases the ophthalmic branch, as in the author's first case, escaped division, yet complete relief to the neuralgia has followed in every one, and of course the nutrition of the eye had not then been endangered. It seems quite impossible to avoid dividing the motor root of the ganglion, and hence the masticatory muscles on that side must atrophy. The resulting inconvenience is less than would be expected.

What is the prognosis or hope of a permanent cure after excision of the Gasserian ganglion? Seeing the disappointing results of neurectomy, removal of Meckel's ganglion, and other operations on branches of the fifth nerve, it is easy to suggest that merely temporary relief will be afforded by the major operation. But at present the testimony is unanimous that where the Gasserian ganglion has been efficiently dealt with the neuralgia does not return. Krause has one case operated on five years ago, and Horsley one over four years, both free from any recurrence.

It is of interest to note that in R. W. Smith's monograph on Neuroma (New Sydenham Society) an illustration will be found showing a large fibrous tumor growing in the Gasserian ganglion.

CASES OF TRAUMATIC MUSCULOSPIRAL PARALYSIS, WITH RESTORATION OF FUNCTION AFTER SECONDARY OPERATION.

KENNEDY (*British Medical Journal*, Nov. 5, 1898) details four cases operated on, three of them successfully. The musculospiral nerve from its close proximity to the bone is one which is peculiarly liable to injury, and its laceration is therefore a not infrequent complication in fractures of the shaft of the humerus. This being the commonest cause of injury to the nerve, it is less surprising that the nerve injury is frequently overlooked at the time of the accident, and the fractured limb having been satisfactorily set in splints the signs of the injury to the nerve are not noticed till the fracture is united and the splints removed, when the results of the injury to the nerve soon become matters for consideration. Thus it is that an opportunity is not often afforded of treating division of this nerve by primary suture, but that the cases are usually seen some considerable time after the accident, when the results of division of the nerve call for a secondary operation.

The interval between the injury to the nerve and the operation undertaken for repair in the three cases which had a successful result was from twelve and a half to fifteen weeks, while in the remaining case eleven months elapsed. In the latter case no improvement whatever resulted from the operation, although as far as the operative procedure was concerned the case had the same course as the others—that is, the ends

of the nerve were brought into apposition, and the wound healed by first intention. The explanation is that the muscles were totally degenerated, and improvement could not therefore result. Sensation in this case was perfect before the operation, and therefore proof of return of conductivity of the nerve could not be obtained. Some improvement in the extension of the fingers, it is true, did result in this case; but this is to be regarded as substituted function from hypertrophy of the lumbricals and interossei, as extension was effected only at the phalangeal articulations, and not at the metacarpophalangeal nor at the wrist.

Nothing, therefore, can be of more importance in giving a prognosis than the length of interval between the accident and operation, and if this interval is within three or four months recovery may be expected, but if it extends to almost a year recovery of the muscle is unlikely; although where loss of sensation also exists, the recollection of such cases as that reported by Jessop—in which recovery of sensation took place after an operation performed nine years subsequent to the accident—would lead us to expect recovery of this function at periods very remote from the time of injury.

Any case in which irritability is found in the affected muscles, although only to the continuous current, may be treated with hope of a successful issue; but for the restoration by operation of the conductivity of the nerve, the essential condition is successful asepsis. If suppuration results in the wound, the resulting cicatricial tissue, developing simultaneously with the young nerve fibers at the seat of suture of the nerve, results in compression of the nerve which prevents conductivity and leaves the condition unrelieved. This, no doubt, is the explanation of many failures, especially in experimental work on animals, in which it is not so easy to attain and maintain sepsis.

OPERATIVE REDUCTION OF CONGENITAL DISLOCATION OF THE HIP.

DOYEN (*British Medical Journal*, Nov. 5, 1898) describes the new methods of reducing congenital dislocation of the hip by operation, which he states give good results up to the age of eighteen to twenty years. The operative technique requires the use of special instruments and may be described in the following steps: (1) The liberation of the head of the femur; (2) reconstruction of the cotyloid cavity; (3) reduction of the head of the femur; (4) closure of the wound and application of fixation apparatus.

1. The head of the femur may be freed in a few minutes by means of a curved incision along the inner border of the tensor fasciæ femoris, extending outward and backward below the anterior superior spine of the ilium. The pseudocapsule is incised and resected, and the head and neck of the femur freed from any connection that might interfere with reduction.

2. The acetabulum, obliterated by new-formed osseocartilaginous tissue, is recognized with the index-finger, and to its center and to the required direction there is applied a circular chisel with cutting, curved teeth, which bores a hemispherical cavity. As the tube turns it works its way into the spongy bone, gradually cutting away the latter in thin shavings. The shavings of bone pile themselves up in the interior of the tube. The completion of the formation of the acetabulum is recognized by the resistance of the hard inner surface of the iliac bone. The instrument leaves no osseous débris in the wound, and by turning the tube round in the opposite way the cotyloid cavity may be smoothed and polished.

3. In young children the reduction is effected without much effort. In youth, on the contrary, the strongest efforts may be ineffective. In such a case the patient is placed on a perforated plane, with the pelvis fixed laterally by four to six wooden bolts. The pubes lie against a vertical stem, which is placed between the child's legs, and which turns on its own axis. Above this stem a transverse metallic arm fits into a cylindrical opening. This arm moves from left to right without being able to turn upon its own axis. Above it there fits into an anteroposterior opening an adjusting screw fitted behind with a bolt, and in front with a vertical opening with which a cylindrical stem ends in the form of a spoon. This spoon is attached to the head of the femur or to the great trochanter, and the axis of the instrument, which has its leverage from the pubes, is turned to such an extent that the head is turned directly towards the new cotyloid cavity. The latter is drawn down by turning the screw. As soon as the head reaches the level of the cotyloid cavity, a slight rotation inwards of the spoon turns it at once into the hollow that has been made.

4. The wound is stitched and drained. To facilitate the dressing Doyen has had a spe-

cial support made formed by two steel stems which fit into the four oval openings in the metallic rectangle in such a way that the acute angle they make together may be considerably modified. These stems are joined at each end by a transverse bar fitted with pressure screws. At the lower end, towards the child's feet, are two supports. The apparatus is arranged according to the child's height and the amount of abduction it is desired to produce. The screws are tightened, and the apparatus becomes really a metal couch or table of great solidity. The child is placed on this couch in such a way that the ends alone of the stems rest on one side on the operating table, and on some mechanical support on the other. The plaster bandage is then applied with ease and freedom, and without any danger of displacing the head of the femur. When the plaster has hardened the two terminal bars are removed, and then in succession the two stems, etc., behind the metallic rectangular frame. This simple apparatus is of great value whenever it is required to apply a plaster-of-Paris jacket around the trunk or the limbs. With a little modification it may also be used in the forcible straightening of the spine.

THE TREATMENT OF SPINA BIFIDA BY "OPEN OPERATION," FOLLOWED BY CLOSURE OF THE SPINAL CANAL.

PEARSON (*British Medical Journal*, Nov. 5, 1898) lays stress on the following points: (1) The position of the patient should be lying on the side with the head low. (2) The first incision should in all cases be a lateral one, so as to avoid possibility of wounding cord or nerves. Moreover, this lateral incision, made on what is the uppermost aspect of the tumor in the posture recommended, gives a complete view of the interior of the sac. Mr. Mayo Robson uses a median incision in cases of simple meningocele, but many authorities state that it is often impossible to say whether the cord is present or absent; and in any case, as the central portion of the skin and sac will have to be removed, there is no object attained by a median incision. (3) It is a distinct advantage to retain the fluid in the sac, or replace it by irrigation during the separation of the cord, etc., from the skin. Mr. Robson advocates that in cases where this separation is difficult a portion of the skin should be left attached to the cord and placed with it in the spinal canal. This seems an objectionable proceeding, and should be avoided if possible, as covering up such epidermic structures is likely to give rise to after trouble, such as the growth of hair or the formation of sebaceous tumors. (4) The insertion of the sponge to prevent leakage from the canal during operation. (5) The liberating lateral incisions to enable the aponeurotic coverings to be glided into a position of complete approximation over the canal, and to be retained there by sutures without the tension which would otherwise exist. (6) The operation is applicable to cases of meningomyelocele—by far the most common form met with in practice, and which has usually been regarded as a form on which it was unjustifiable to operate. (7) The use of a small drainage tube for a few days between the dura mater and aponeurotic covering is advisable in case leakage of cerebrospinal fluid occurs.

THE RESULTS OF OPEN OPERATION IN THE TREATMENT OF RECENT FRACTURE OF THE PATELLA.

PHELPS (*New York Medical Journal*, Dec. 17, 1898), in speaking of the operative technique, advises a free lateral incision, if the fragments are to be sutured, since it permits the more thorough ablution of the joint cavity, the easier and more perfect coaptation of the fragments, and the more accurate insertion of the protective sutures; it also facilitates operation and diminishes the possibilities of infection. It is unobjectionable, since the chances of primary union are quite as good with a long as with a short incision; and the superficial cicatrix soon becomes movable, and within a year or two is practically obliterated. Direct suture of the fragments insures their firmer contact, and adds to the strength of union at an early period at a time when, while comparatively weak, it is yet necessarily subjected to the strain of passive movement. The use of silver wire in place of a soft suture adds to the strength of union while still immature, and, if the wire has been passed through flame at the time of operation, removes the last possibility of deep infection. If the twisted wire, after having been cut short, is turned down and thoroughly hammered into the osseous groove of the line of fracture, and afterward covered in by the deep sutures, it never requires subsequent removal; it causes no superficial irritation, and may be found post mortem after the lapse of years unchanged and incorporated

in the new bone. The deep or protective sutures are essential to the safety of the joint if by any chance the superficial wound becomes infected. The complete removal of blood and clots from the cavity of the joint is important, since, if permitted to remain, blood-clots organize and seriously hamper its future movements, or, at least, greatly increase the labors of the surgeon in their restoration. As the removal of the fibrous tissues and coagula from the osseous surfaces exposed by fracture excites fresh hemorrhage, which continues after the wound is closed, temporary drainage of the joint is of great service.

The secondary or after treatment may be regarded as absolutely essential to the attainment of the best results of the operative method of treatment, and its neglect is responsible for its comparative failures in the hands of some operators. Movement of the joint should be begun early, and the case kept under observation until flexion has been carried beyond ninety degrees, as, left to his own devices, the patient is not unlikely to be content with just sufficient motion for easy locomotion. Lateral movement of the patella should begin at the end of the third week; if neglected, the bone may become fixed to the femoral condyles, and be liable to refracture in the effort at flexion. In both lateral movement and in flexion firm support should be given to the upper and lower borders of the bone. The time required for perfect reestablishment of these movements varies greatly, and is dependent upon the assiduity of the surgeon, the intelligent cooperation of the patient, and accidental conditions presented by the joint itself. In general, it may be estimated at from one to two months after the beginning of flexion. Early neglect, the indifference of the patient, complicating arthritis from concurrent injury of the joint, the retention and organization of the blood-clots, or much inflammatory thickening of the extra-articular tissues, may extend this period. If the case proves obstinate, recovery may be expedited by the use of massage and other manipulation by a skilled masseur, or even by forcible flexion and stretching of adhesions under the influence of an anesthetic. If extensive suppuration has not occurred the function of the joint can always be entirely restored by sufficient and well-directed effort.

The time predicted by Dennis has already arrived when the "final verdict" may be safely rendered. The number of cases which have been subjected to operation is quite sufficient to satisfy the reasonable minds of surgeons that it is neither "an unsafe nor an unjustifiable procedure." There certainly is "evidence," which in 1890 Bull conceived to be wanting, "that the ultimate results have been better than those of non-operative methods." Experience has amply confirmed the logical deductions from positively established premises. The last word may yet remain to be spoken. Operation may be bettered in its details; results may be made more perfect; but nothing can be added to perfect an argument already complete, and no further multiplication of cases can more absolutely demonstrate that which is already irrefragably proved.

TUBERCULAR LARYNGITIS.

FOWLER (*Intercolonial Medical Journal of Australasia*, Oct. 20, 1898), together with most laryngologists, believes in the existence of primary tubercular laryngitis. No one has yet seen on the post-mortem table a case of tubercular laryngitis unaccompanied by other tubercular lesions. The nearest approach is "the case reported by Demme, of a boy who died of tubercular meningitis. The necropsy showed the presence of a laryngeal ulceration, with tubercle bacilli, the thoracic and abdominal organs being at the same time free from tubercular disease." In this case the presence of tubercular meningitis was unfortunate from one point of view, but from another certainly suggestive.

If a case of tubercular laryngitis be examined with the laryngoscope, it is noted that the vocal cord of the side affected is in the cadaveric position—that is, with neither complete adduction nor complete abduction. In other words, the crico-arytenoid joint assumes that natural position of rest that every joint assumes whenever attacked by morbid lesion. The capsular ligament of a crico-arytenoid joint is, in front, thin and loose, but behind is strengthened by a strong posterior crico-arytenoid ligament, behind which again is a firm fascia, connecting and covering the arytenoid muscle, and the crico-arytenoideus posticus. Externally, the capsular ligament is strengthened by the crico-thyroid membrane. Therefore, if the initial mischief be in the joint, one would expect to see the consequent swelling in a front position, between the vocal cords. Thus is explained the interarytenoid thickening observed invariably in every case. The earlier the case

the greater is the relative prominence of the interarytenoid thickening. Further, it is by no means infrequent to see the interarytenoid thickening, even in early cases, on both sides —not as one uniform swelling, but a swelling that is divided in the middle. This fact shows that the disease has not spread from one side to the other by continuity, but has started in two separate foci, each in the position of a joint. In these cases, both cords are in cadaveric positions, and the voice is more aphonic than it is in a patient with only one side affected.

In fifty autopsies performed the greatest seat of mischief was in the immediate neighborhood of a crico-arytenoid joint, and the joint itself was always implicated. The deepest part of the ulcer, when ulceration existed, was always immediately in front of the joint, and the joint not only communicated with the floor of the ulcer, but was also more or less disorganized. In many cases the arytenoid was a loose piece of dead cartilage. It is not at all an infrequent occurrence for tubercular meningitis to supervene on tubercular joint trouble, whereas the reverse order of affairs has never happened.

It is in consequence of these considerations that, when examining with the laryngoscope a case of tubercular laryngitis, it is always looked upon as a joint disease. Considered as such, there is no difficulty in apportioning to each condition observed its appropriate share in the progress of the disease. Therefore, the interarytenoid thickening, the swelling of the ventricular bands, the ulceration, the swelling over the arytenoid cartilage and in the aryepiglottic fold, and the swelling of the epiglottis, are all extensions of the disease from a joint focus, in an order that one would reasonably expect by virtue of anatomical relationship.

In dealing with the objective signs of tubercular laryngitis perhaps the most characteristic feature noted is the anemic-looking condition of the mucous membrane. The swelling of the ventricular band is always greatest posteriorly. Whatever the degree of swelling attained, the ventricular band, *per se*, never completely hides the corresponding vocal cord. A small part at least of the latter structure is always visible anteriorly. The swelling over the arytenoid cartilage and the cartilages of Santorini and of Wrisberg assumes a pyriform shape, which is the more pronounced the more the epiglottic fold is involved. In consequence of the quantity of loose areolar tissue, this swelling tends to increase with some rapidity, so that the interior of the larynx becomes more or less obscured; and when both sides are affected the interior of the larynx may be invisible. Swelling of the epiglottis does not always occur. Sometimes the shape is spatulous, with a more or less crenulated margin; at others the swollen epiglottis is bent forwards upon itself. In appearance these swellings are semisolid, as if their causation was due to some gelatinous edema. In reality there is no edema. The tumefaction is entirely due to tubercular infiltration of the adenoid and connective tissues. It is remarkable that the muscles of the larynx, minute as they are, remain unaffected.

The ulceration of tubercular laryngitis partakes of the general pallor, and has the same characteristics as tubercular ulceration elsewhere. In those cases in which the ulceration extends below the vocal cord, it is only as a small tongue-shaped denudation of the mucous membrane, which may be only apparent post mortem. With the laryngoscope only a portion of the ulcer is visible, more or less of it being hidden by the various swellings above it. In appearance it is very different from the punched-out ulcer of syphilis, which is greatly hyperemic, possesses evidence of repair, and may also present cicatricial tissue. Different, too, is the appearance of the cancerous ulcer with its heaped-up, angry-looking margins, devouring without discrimination every structure in its sure and certain advance.

The vocal cord on the affected side, besides being in the cadaveric position, is opaque, with here and there a distended blood-vessel. Later on the cord becomes shaggy. This is due to minute erosions, as if the surface had been gently nibbled by some rodent. The vocal cord on the unaffected side, otherwise healthy, nearly always exhibits isolated swollen blood-vessels, the increased blood-supply being demanded by the extra functional activity called for. The vocal cord is the last structure to be separated from the arytenoid cartilage.

The hoarseness is of an aphonic character. The cause of the aphonia is evidently owing to the inability of the patient to close the rima glottidis, and also to the loss of the resonant qualities of the ventricle of Morgagni, for this chamber is more or less obliterated by the swelling of the ventricular band and by ulceration. Not infrequently the aphonia during a conversation suddenly turns to a falsetto.

In a majority of cases the onset of dysphagia is for fluids only. This is a very characteristic symptom, and exists in no other laryngeal disease. It is explained by faulty closure of the laryngeal lid. When the leak is minute, fluids find their way through sooner than solids. Later on, when swelling and ulceration have increased, there is dysphagia for solids also, and the patient's condition is pitiable.

Sooner or later it becomes necessary to treat this symptom. The spray of a five-, ten-, or even twenty-per-cent solution of cocaine just before meals has now superseded all other forms of anodyne applications. Eventually cocaine fails to relieve the dysphagia, and then it becomes necessary to adopt the following method: The patient lies on his stomach, with his head hanging over the foot of the bed. The food, of a fluid nature, is placed in a receptacle on the floor, and the patient sucks it up through an india-rubber tube. By this method the fluid passes along the roof of the mouth, and so avoids the local lesion.

In great contrast is the pain on phonation in syphilis, and the constant pain of cancer. So insensitive is the diseased part that even irritating local remedies are borne with comparative immunity. In most cases the greatest discomfort is complained of externally by the side of the larynx. It is caused by swollen glands, which, however, never attain any great size, and is relieved by an occasional painting with linimentum iodi.

Barring the dysphagia for fluids, laryngeal patients can, up to a certain stage, take creosote as well as ordinary phthisical individuals. Locally applied, a twenty-per-cent solution of menthol in olive oil is a treatment that was exclusively adopted at the Central London and Throat Hospital as far better than the application of lactic acid or any other drug. The application of the menthol solution causes no discomfort to speak of. Later on it is necessary to cocainize the larynx beforehand; until finally compelled to desist from all active interference. For a time the menthol gives relief. It cleans the ulcer, and causes a palpable diminution of the various swellings.

Creosote, thymol, pinol, carbolic acid, the oils of eucalyptus and of cinnamon, are all useful in turn, or in any combination. Codeia is the most valuable drug for the formation of a lincture.

The prognosis of secondary tubercular laryngitis is fatal.

CATHETERIZATION OF THE URETER.

PASTEAU (*Annales des Organes Génito-Urinaires*, No. 121, 1898) states that he has performed 140 cystoscopic catheterizations of the ureter, employing therefor the instrument devised by Albarran. He finds neither local nor general anesthesia necessary, and introduces the catheter to the kidney pelvis. Sometimes no liquid will escape through the catheter, either because there is an obstruction, or because the contained fluid is too thick. In no instance was there infection following catheterization, and usually the patients treated were ambulant.

Albarran in the same journal states that he has treated during the last year six patients suffering from a non-febrile unilateral pyelitis, by means of lavage of the pelvis, made practicable by the ureter catheter. First, boric acid was employed, afterwards silver nitrate 1 to 1000. In three cases there was a large quantity of pus, unaccompanied by renal retention. After from five to eleven washings of the kidney pelvis there was remarkable improvement — pains disappearing and the kidney secretion becoming much more clear. Four patients, with a slight attack of pyelitis, were also greatly improved. In the last two cases there was some renal retention, the kidney pelvis containing from four to six drachms of turbid urine. One was cured after pelvic lavage and the operation of hepatopexy. In the second one the retention persisted, but the pus disappeared.

Désnos states that he has seen four cases of high fever consecutive to ureter catheterism, one terminating fatally.

ON THE CAUSE AND MECHANICAL TREATMENT OF SUBLUXATION OF THE SEMILUNAR CARTILAGES OF THE KNEE-JOINT.

SHAFFER (*Annals of Surgery*, October, 1898) states that "Hey's internal derangement of the knee-joint," occurring as it does both from trivial mishaps as well as from major injuries, and being a not infrequent accident, it seems strange that there should be any doubt as to its essential nature, especially as Hey wrote his description of the trouble so long ago as 1803.

A further study of the subject in Allingham's treatise, "Internal Derangement of the Knee-Joint," published in Wood's Medical and Surgical Monographs in 1890, will dispel all reasonable doubt in the matter. It may be profitable, however, to inquire into its

exact mode of production, but the essential nature of the trouble is well understood.

From these and other sources it may be assumed that the "internal derangement" described by Hey is occasioned by a varying degree of displacement; by even, in many cases, an imperceptible subluxation of one of the semilunar cartilages. In brief, a visible or manually demonstrated existence of the subluxation is not always necessary. The trouble is so far "internal" that in many cases the ordinary physical signs of a dislocation are not to be observed or felt.

Aside from the generally accepted view that this subluxation occurs while the knee is flexed and the leg is rotated, there are other contributive causes which have not been carefully investigated. In short, that it is not the simple fact that rotation of the tibia occurs at the knee during flexion and extension of the joint, for these are normal movements, but rather that there is a delayed or hindered extension and rotation which permits this accident to occur. It would seem that this subluxation is not likely to occur, except perhaps in cases of violent traumatism, while the quadriceps extensor muscle is relaxed.

Nor is the trouble ordinarily considered as one which belongs to orthopedic surgery. Especially since Allingham's time it has been regarded as being within the domain of the general surgeon, and so it is in its purely operative aspects. But, as with chronic diseases of the spine and joints, it has its conservative side, and if orthopedic surgeons can offer relief and cure by mechanical means, the general surgeon will welcome their efforts and aid them in their work.

In order to prevent the recurrence of a subluxation of the semilunar cartilage, it is necessary to correct the undue ligamentous weakness of the joint, and to prevent an abnormal rotation of the tibia—in short, to give the knee and ankle anteroposterior motion only. Under these circumstances undue strain is taken off the quadriceps and the ligamentum patellæ, and under favorable conditions the latter, as well as the relaxed crucial ligaments, may shorten very materially in the course of a few months, the object being to prevent every movement at the knee and ankle except anteroposterior motion—in short, to turn the knee into a true hinge-joint, removing entirely the rotation of the tibia. The important part of the apparatus, next to its simple hinge movement, is the joint at the knee, which is so arranged that it will stop the extension just at the point of comfort to the patient, and this point of comfort represents an absence of strain upon the knee-joint ligaments. This is very essential to the cure of the trouble, for experience proves that if the strain is taken from the ligaments they will shorten and the "wabbly" knee will gain stability and strength in a few months.

It is important that the center of the pad at the knee should be opposite the true center of motion (opposite the most prominent point on the internal condyle is near enough) at the knee, and that it should rest snugly against the condyle without undue pressure. The apparatus need not be made heavy, the principal strength being necessary in the rod which connects the knee with the ankle-piece. It is preferable to have this rod on the outside.

1. In many cases of Hey's joint there is an acquired, or perhaps congenital, lateral mobility of the knee-joint. This condition existing, the normal rotation of the tibia in flexion or extension of the knee is greatly increased.

2. In many cases, if not in all cases, there exists an elongated ligamentum patellæ, which so modifies the action of the quadriceps extensor muscle upon the tibia that the force of its contraction upon the tibia is modified or delayed in such a way that extension and rotation are not synchronously performed. And it seems more than probable that this condition forms an important factor in the production of the subluxation of the semilunar cartilage.

THE OPERATIVE TREATMENT OF CLEFT PALATE.

EDMUND OWEN (*British Medical Journal*, Nov. 5, 1898) says that the observations in connection with treatment of cleft palate arrange themselves under three headings: (1) Before the operation; (2) the operation; and (3) after the operation.

The operation not being one of immediate urgency the surgeon can choose his time for it, making such preparations as will, if efficiently carried out, add greatly to prospects of securing a completely successful result.

Thus if a child is brought looking ill or poor, if it is found on inquiry to be liable to severe attacks of diarrhea, or to cough or vomiting, operation must be put off and attention directed towards procuring general and particular improvement of the child. If

the tongue be foul and coated, change of air and diet should be ordered, and the child put upon a course of rhubarb and soda mixture, which has a most beneficial effect in the treatment of chronic dyspepsia in children. Particular attention should always be paid to the condition of the teeth. Every carious tooth should be extracted, or cleaned and filled, and to diminish to the utmost the risk of the line of suture in the palate becoming infected from pathogenic microorganisms, the mouth and gums should be for some days washed over with a saturated lotion of boracic acid with glycerin. No one would propose the performance of a plastic operation upon the hand, for instance, until the area of operation and its neighborhood had been rendered aseptic, and although it is not practicable to effect as much in regard to the mouth, still the surgeon should do his utmost in that direction. Usually there is something for the dental surgeon to do before the mouth is in a condition to invite performance of staphylorrhaphy.

With regard to the important matter of the presence of pharyngeal adenoids and of enlarged tonsils, it has been advised that the operation upon the palate should precede that upon the tonsils and adenoids, but such advice is not sound. The child has hitherto been in the habit of breathing through a wide palatine cleft, and if this is suddenly closed by operation provision should have been made for securing passage for the air as free as possible; and it is well known how seriously the airway may be blocked by tonsillar and adenoid disease.' The surgeon should amputate enlarged tonsils at least ten days before dealing with the palate, and if on doing so he cuts across a septic or tuberculous focus, as often happens, he had better wait a little longer still before dealing with the palate; and when adenoids are conspicuous through the cleft it is surely better that they should be scraped away before operating on the palate.

Just before the operation on the palate the nurse should give a beef-tea enema with a little brandy.

The anesthetic of choice is chloroform, administered partly by a mask, and partly by a Junker's apparatus, but it is not well that the child should be too deeply under the anesthetic. It surely must be an anxious time for the anesthetist when the operator keeps on insisting that the child is not sufficiently comatose; he should now and then show signs of "coming around."

When the child is fairly under the anesthetic a strong suture is passed through the tip of the tongue and the latter is pulled out before introducing the gag; in this way it can best be kept from rolling back against the soft palate when the hindmost part of the cleft is being dealt with.

The child is then brought up to the end of the table and the head is allowed to hang back so that the blood may have but slight chance of finding its way into the larynx.

As soon as the edges of the cleft have been denuded, an incision is made along the inner side of the alveolar process, and as this is apt to be followed by a good deal of bleeding, it is well to pause here for a few moments and make firm pressure with a sponge so as to keep bleeding under control. Then the raspatory is introduced and the mucoperiosteal flaps are raised. But, as a rule, they cannot be shifted towards the middle line, and be sutured there without tension, until the alveolar incisions have been prolonged backward into the soft palate. These incisions, which should be quite free, traverse the attachments of the levator and tensor palati, as well as that of the palato-pharyngeus. Then the attachment of the aponeurosis of the velum to the posterior border of the hard palate is divided with the curved scissors and the sutures are inserted. For the sutures Owen uses almost entirely silver wire, supplemented in some cases with horsehair. The wire sutures are inserted by a modification of Smith's needle, which is also made by Weiss. In the case of a complete cleft he inserts about ten or a dozen sutures.

A point of great practical importance is to have lateral incisions made very freely. Indeed, they are made so free that, as the palate is being sutured, they are used for the introduction of small pieces of sponge for removing blood from the front of the nasopharynx, and after operation they together seem to be as wide as was the original cleft; insomuch that onlookers have sometimes asked if there is no fear of the flaps sloughing, or of the incisions failing to be obliterated. In neither of these respects, however, has there been any trouble.

The operation as thus described is extremely simple. It demands the use of no rectangular knives for the separation of the mucoperiosteum, and the expansions of the muscles into the soft palate are divided by a simple straight incision. One great point in the operation is to have the edges of the palatine flaps adjusted without any tension

whatever. The effect of tension after any surgical operation is apt to be disastrous.

Probably the child will vomit when he is "coming around," and if he does this just before he is moved from the table, so much the better. The act of vomiting does not in the least interfere with the line of suturing, though of course if vomiting persists it may be prejudicial. The nurse must be told not to be surprised if fluid ejected from the stomach is blackened by blood which has been swallowed. When the child has been put back to bed his head should be slightly raised on a pillow, with the face turned down, so that the blood-stained saliva may escape from the mouth and fall into some absorbent material.

Whether the mouth spray is used or not a case now and then goes wrong after operation. The child looks ill; the temperature runs up a degree or two; his tongue is coated; breath foul; line of palatine suture becomes swollen and unhealthy; and a thick, stringy, mucopurulent discharge collects about the roof of the mouth. The appearances are ominous and unmistakable. What has happened is that staphylococci have taken possession of damaged tissues, and, undergoing cultivation, are spoiling or completely wrecking the surgeon's handiwork. Owen has at the present time an operation case of this sort in the Hospital for Sick Children. It was in a girl with a complete cleft (and rather a wide one) of the soft, and of the whole of the hard, palate. A thrust cultivation from it on the seventh day showed the gelatin completely liquefied by vigorous staphylococci in less than thirty-six hours.

A fortnight after the original operation, when the sundered and swollen edges of the cleft began to look bright and clean, the child was again put under chloroform, and the marginal granulations having been freshened up, the edges of the flaps were brought together once more and secured by wire sutures, which were inserted quite wide of the cleft. To get the edges together without tension the raspatory was introduced once more by the lateral incisions, and again freely raised the mucoperiosteal flaps. The case has done extremely well, and it seems to promise as good a result as if the edges had adhered by primary union. This, indeed, is the chief point of the paper, and is one of great practical importance.

There is no factor so prejudicial to prompt union after staphylorrhaphy as septic infection, but after a child has undergone this infection we should probably be right in concluding that he could not undergo a second attack; that he has acquired by it a complete immunity, hence a prompt repetition of the attempt to close by sewing should be practiced.

TREATMENT OF PROSTATIC HYPERTROPHY BY CAUTERY.

NICOLICH (*La France Médicale*, Dec. 23, 1898) states that vasectomy is of no service in cases of prostatic enlargement, characterized rather by intravesical projection than by general increase in bulk. When this condition is present and the obstruction is due to a small nodule, cauterization—that is, the Bottini operation—is especially applicable.

Freudenberg a little over a year ago exhibited the case of a man sixty-three years old, who because of absolute retention had been subject to castration by Casper. This operation was absolutely fruitless. The patient was entirely dependent upon catheters and suffered from severe cystitis. Three years later Freudenberg practiced the Bottini operation, making three incisions, one downward an inch in depth, one upon the left lateral lobe, and one about three-fourths of an inch deep upon the anterior lobe. Six hours after operation there was voluntary micturition, and in a month the patient was able to dispense entirely with the catheter. Six months later he was in excellent condition.

Nicolich has practiced the operation upon five cases, all suffering from complete retention. Three were cured, two were improved. The details of but one case are given—that of a man of seventy-four years. The cure seemed to be complete, although retention had been absolute.

BOTTINI'S OPERATION IN THE RADICAL TREATMENT OF HYPERTROPHY OF THE PROSTATE.

MEYER (*Medical Record*, Jan. 14, 1899) details his personal experience with Bottini's operation in the radical treatment of hypertrophy of the prostate. He has thus treated twelve cases, and states that his results were as great a surprise to himself as they were a delight to his patients. He counts six cures, two marked improvements, two deaths, independent of the operation; one death with the operation as the remote cause, and one as the immediate cause. The study of the literature of the subject shows that in a series of fifty-seven cases operated upon by Bottini

partly with a cauterizator and partly with the incisor, thirty-two were cured; eleven were markedly improved. In his last twenty-three cases operated upon with his improved incisor exclusively, there was scarcely a failure. A tabulation of the reported cases shows that of 164, 80 were cured, 44 were improved, 26 were not improved, and 14 died. Meyer classes as cures:

1. Cases in which patients are able to dispense altogether with the catheter and in which not a drop of residual urine is found after voluntary urination.

2. Cases in which the patients are able to get along without the catheter, but in which some residual urine is still found if the patient is made to urinate without having any desire for it; while when a certain amount of liquid, say 180, 240, or 300 cubic centimeters, is injected into the bladder, it is afterwards passed by the patient to the last drop, and the last few drachms of the injected fluid are squirted out in jerks, as we are wont to see it in perfectly healthy subjects, thus proving that the bladder is being emptied voluntarily to the very last drop.

It has not yet been settled as to the final result of the operation. Bottini states that he never observed a recurrence, and his experience covers over twenty-three years.

Meyer states that after his somewhat extended experience he is ready to advise every patient with non-complicated prostatic enlargement to submit to the galvanocaustic treatment as soon as resort to continued self-catheterization has become imperative.

In patients with very large, soft, and easily bleeding prostate, ligation of the vasa deferentia should precede by two or three weeks Bottini's operation. This would lessen the danger of a far-reaching thrombosis with consequent pulmonary embolism. The operation should be preceded by cystoscopy, partly to determine the position in which the galvanocaustic knife should be placed, but mainly to detect the possible presence of a quiescent stone.

In regard to the operation it is most essential that the cuts should be made slowly, very slowly; in fact, the wheel of the instrument should be turned as if we had to overcome a tremendous resistance. On the return trip of the heated knife one may first go somewhat faster, slackening up within the last centimeter of the groove in the female part of the instrument, so as to be sure the knife reenters the same. Further, the knife when tested before starting the operation ought to be almost at a white heat, not red-hot as Bottini proposes, who, it must not be forgotten, operates with the bladder empty. But when operating with the bladder filled the platinum knife, surrounded as it is by more or less of the injected water, cannot do efficient work—*i.e.*, burn the tissues thoroughly right and left and in front—unless it be at a white heat. This fact was demonstrated when observing the heated platinum tip of the Paquelin burner when operating, for instance, upon hemorrhoids with the clamp and cautery. As soon as the red-hot tip is put into action its glow disappears; if at a white heat before, it turns red. Of course, this is due to the immediate loss of heat caused by the destruction of the tissues. If red-hot it will be noticed how very slowly the work is done.

The question as to how many cuts should be made, and at what angle to the median line, is still an open one. The posterior cut in the median line down to the fundus of the bladder is certainly the most important one. The urethral floor must be lowered at its beginning to the floor of the bas-fond. It is obvious that three or four cuts will afford the patient a better chance for thorough urinary drainage than a single one.

The prostate is, of course, thinnest at the upper circumference of the internal urethral orifice; the knife may thus easily cut into the paraprostatic tissue, which carries large veins. Four cuts made at one sitting with the knife at almost white heat, and at angles to be determined by the cystoscope and rectal palpation, will best insure a rapid and successful issue, and thus avoid the necessity of a possible repetition of the operation. The latter would become necessary if after a certain time vesical drainage should not have become perfect as a result of the first interference. The length of the incisions must, of course, vary according to the size of the gland. This question of determining their proper length is one of the most difficult points in the entire operation. Freudenberg's advice certainly is very good, namely, to introduce the finger into the rectum after the beak has hugged the prostate, and then be guided by the size of the gland in the patient. A middle lobe may at this moment have turned backwards, thus increasing the longitudinal diameter of the gland during the operation. A soft gland can be compressed and will then show a reduced size in the anteroposterior direction. The finger in the rectum will also insure the proper position of the instrument

within the bladder, before the operation is begun.

If patients are able to empty the bladder soon after the operation, no matter how frequently the calls for urination may come, and if percussion does not show a tympanitic sound immediately above the symphysis as a sure sign there is no retention, absolute non-interference is the best after-treatment. Vesical irrigation does not relieve the patients at all, if they should suffer after the operation. We should by all means abstain from washing the prostatic urethra, to avoid a resulting hemorrhage. Irrigation, no matter how gently it is done, is apt to push or tear off the eschar from the burnt prostate and thus expose the tissue, which bleeds so easily and is so well provided with blood. The elimination of the escharotic tissue should be left to Nature.

The patient may have a call every few minutes, and then be able to void a very few drops only under most intense and painful tenesmus; and this may go on day and night, wearing him out gradually. If in such instances catheterism is difficult and painful, the permanent catheter is indicated. It will bring relief so long as it is retained and not obstructed. If removed too soon after the operation, the former trouble will reappear. We should therefore be prepared to continue the permanent drainage through the urethra for a number of days; if necessary, up to the time of the elimination of the eschar.

The operation certainly is not entirely devoid of danger. This drawback, however, it has in common with all other operations so far devised for this trouble. Its two principal dangers are, first, sepsis or pyemia, and second, embolism of the pulmonary artery or its branches. In the first case streptococci enter the circulation by way of the kidneys or from the proximal pole of a thrombus or thrombi which have formed in the prostatic veins; and in the second, far-reaching thrombosis within the prostatic venous plexuses and within the interior iliac or common iliac vein having occurred, a part of this thrombus by some unfortunate cause is torn loose and thrown into the circulation.

The future must show how these dangers may be reduced to a minimum, or even be entirely averted. At present, it would seem we are justified in stating that the larger the prostate the greater its blood-supply, especially the more enlarged its venous plexuses; the more pronounced the purulent catarrh of the prostatic urethra, as well as of the bladder and even of the pelvis of the kidney, the more dangerous is the operation. In other words, the smaller and less succulent the prostate, the more normal the bladder and upper urinary tract, the less is the risk.

Reviews.

A SYSTEMATIC TREATISE OF MATERIA MEDICA AND THERAPEUTICS. By Finley Ellingwood, M.D. With a Condensed Consideration of Pharmacy and Pharmacognosy by Professor J. U. Lloyd, Ph.D. Chicago: The Chicago Medical Press Co, 1899.

This book has been written by a professor of materia medica in the Bennett Medical College of Chicago, which as we understand it is an institution usually classed as "eclectic," but the quality of the information which is given in its pages shows that the difference between eclectic therapeutics and the therapeutics of the so-called regular school is no difference at all. Were it not that the author is desirous of placing in the hands of eclectic students a work written by one of their own following, there would be little use in the publication of the volume before us, since the books already upon the market would provide them with facts identical with those which are stated in this volume.

In the preface the author states that he has not only consulted members of his own school of physicians, but that he has also resorted frequently to such books as King's American Dispensatory, the United States and National Dispensatories, and the works of Scudder, Locke, Watkins, Webster, Ringer, Hare, Wood, Bartholow, and Butler. He has also obtained much information from a number of well known medical journals, amongst which we are pleased to note the THERAPEUTIC GAZETTE.

In an introduction in which general therapeutic considerations are discussed we find the following broad view of medicine stated, namely, that "there are gems of truth scattered throughout the methods of every individual practitioner of whatever creed, and these gems are rapidly becoming common property, so that all feel they have a claim upon them." If the various factions would but unite in this general therapeutic view much of the misunderstanding which leads to the formation of obstructions in the progress of medical science would be avoided. Again, in speaking of the quality of drugs, Dr. Ellingwood states that "he who claims to be a pharmacist, and yet slights the subject of the quality of the drugs, does no credit to pharmacy, and the physician who

belittles this great study is surely ignorant of its intricacies and magnitude." After this preliminary matter we find descriptions of the various preparations like tinctures, emulsions, etc., which are variously prepared by pharmacists, and then the classification of remedies, which is one of the best that we have seen, and which combines a number of the advantages possessed by several of the classifications that are familiar to therapeutists. In the compilation of the text the author as a rule avoids quoting writers in any school of medicine, and for this reason it seems to us that the value of the book is increased, in that the views expressed are largely his own, and the reader is not at a loss to know what the views are which are held by the author. Almost without exception the therapeutic directions given as to the use of remedies are in accord with prevalent teaching by the best therapeutists in the regular profession, and while at times it seems to us as if the author is optimistic in the views which he holds concerning the efficacy of certain remedies, this optimism is at no time excessive and is perhaps wise, in that it antagonizes the tendency to therapeutic nihilism which seems to crop up now and again in medical literature.

The weakest point of the book seems to us to be that part which is devoted to medical electricity, which is so short as to be almost useless. While the volume covers 700 pages, it is not to be considered an exhaustive treatise upon pharmacology and therapeutics, but rather a concisely written compilation of the modern use of drugs, although it is notable that a number of remedies which we are accustomed to prescribe with considerable frequency are not thoroughly considered. In the next edition we think it would be wise if the author would introduce information concerning the poisonous and untoward effects which the more powerful drugs often produce.

If all the readers of this work will become as good therapeutists as its teachings are qualified to make them they will do well.

OCULAR THERAPEUTICS FOR PHYSICIANS AND STUDENTS. By F. W. Max Ohlemann, M.D. Translated and Edited by Charles A. Oliver, A.M., M.D. Price, $1.50.
Philadelphia: P. Blakiston, Son & Co., 1899.

This is a small octavo volume of a little over 250 pages, printed on good paper and in large type, and detailing the various therapeutic measures other than operative procedures which are useful in the treatment of abnormal conditions in the eye and adjacent parts.

The German edition is dedicated to Schweigger of Berlin, and the American translation to Dr. Wm. F. Norris of Philadelphia. The actual translation is made by Dr. David Riesmann.

As is indicated by the title of the volume, it contains a very large number of formulæ, indicating how various ointments, lotions, and other medicinal preparations can be used in the eye. The editor has, in foot-notes, given the synonym in the United States Pharmacopœia of the various preparations mentioned in the prescriptions from the German Pharmacopœia. This book ought to prove exceedingly popular to the general practitioner, who is often at a loss to know how to treat inflammations and other conditions of the eye which do not require correction by means of lenses or operative procedures.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. Edited by Thomas L. Stedman, M.D. Volume XVII.
New York: William Wood & Co., 1898.

This, the seventeenth, volume of this well known encyclopedic work has just appeared, prior to the issue of Volume XVI, which we are told has been unavoidably delayed. It deals with certain of the infectious diseases and malignant new growths, and opens with an article by William Hallock Park, of New York, on diphtheria, in which he discusses this disease from its bacteriological, pathological, and diagnostic standpoints. As is well known, Dr. Park has had ample experience to justify his authorship of such an article. His pages are followed by those of Dr. Abraham Jacobi, who discusses the symptomatology and treatment of this affection, and it is needless to say that he is in favor of the antitoxin method. He also takes an opportunity to hold up to scorn the attempt of Behring to patent his antitoxin abroad and in this country. Following this article by Dr. Jacobi, which is characterized by his strong personality and the positive statement of his views, is one by Victor Babes on tetanus. We note with interest in the part devoted to treatment that, after discussing the various drugs which have been employed with more or less success, he says, under the heading of "Specific Treatment," that it has not been found possible to reduce the mortality of tetanus by the use of antitoxic serum to anything like the extent which was prophesied by Behring, and while he believes he

has used this remedy more largely than any other person, he has been unable to save animals even with very large doses, unless the infection has been of such a character as to be favorable to the patient. It is interesting to note in view of the cases which have been recently published, in which the tetanus antitoxin was injected directly into the brain, that in his opinion the nearer it is injected into the brain and threatened nerve cells the more assured is the probability that it will be able to prevent the toxin from attacking these parts.

The next article is on the general pathology of cancer, by W. Roger Williams, of Bristol, England, in which he gives a historical and pathological survey of this condition in an exhaustive article of many pages, and forming the largest part of the volume. Following this is another one upon the symptomatology and treatment of cancer, by William B. Coley, of New York, which is illustrated and is also exhaustive. This article is again followed by one on sarcoma, by Dr. Williams, which is in turn followed by one on the symptomatology and treatment of these growths, by Dr. Coley.

The volume concludes with articles upon malignant new growths of the skin, by Dr. John T. Bowen of Boston, and another by Edward McGuire of Richmond, Va., upon malignant diseases of the female organs of generation.

Volume XVII is certainly as good as its predecessors, and in some respects is distinctly superior.

A TEXT-BOOK OF MECHANOTHERAPY. By Axel V. Grafstrom, B.S., M.D. Illustrated.
Philadelphia: W. B. Saunders, 1899.

This is a little book of less than 150 pages, detailing the system of mechanotherapy as practiced by the Royal Gymnastic Central Institute of Stockholm, Sweden, and quoting from the various well known authors upon massage and Swedish movements. The illustrations, which are pen-and-ink sketches by the author, are rather crude as compared to most illustrations found in books at the present time, but they serve to illustrate their purpose. As few members of the profession are desirous of investing in large, expensive manuals dealing with this subject, and as this one gives adequate description of the various motions and exercises, it can be commended to those who wish a brief description of these valuable methods of improving the general health. The price of the book is $1.

A MANUAL OF CLINICAL CHEMISTRY. By Elias E. Bartley, B.S., M.D. Illustrated.
Philadelphia: P. Blakiston, Son & Co., 1899.

The author tells us in his preface that in this small volume will be found the essentials for chemical diagnosis and a description of all those chemical processes most useful to the practicing physician. It is made up of the last eighty-eight pages of his "Text-book of Medical and Pharmaceutical Chemistry," with an additional chapter upon Urinary Diagnosis.

We have already referred in terms of warm praise to Dr. Bartley's larger volume, which we have just mentioned, and this little manual possesses all the good qualities of the larger one, save of course that it is very much more limited in its scope. We do not remember having seen so condensed and yet so complete a manual of clinical chemistry for so small a price, the book being sold for $1. We can cordially recommend it to students and practitioners who are careful enough in their work to make chemical analyses.

THE TREATMENT OF WOUNDS: ITS PRINCIPLES AND PRACTICE, GENERAL AND SPECIAL. By Lewis Stephen Pilcher, A.M., M.D. With One Hundred and Forty-two Wood Engravings. Pp. 453; 8vo.
New York: William Wood & Company, 1899.

This work, born of a book on the Treatment of Wounds, published by Pilcher in 1883, differs so greatly from its predecessor that it can in no sense be considered a second edition of that, in its day, most popular and valuable brochure. The first few chapters are devoted to general principles, including the constitutional effects of wounds, their repair, and the sequelæ and complications incident to them. The relation of microorganisms to wound disturbances is given a chapter to itself; while asepsis, antisepsis, and antiseptics are subjects considered in the last portion of the first section of the book.

The second section is devoted to the practice of wound treatment, and naturally it opens with an extremely practical chapter upon the prevention of infection.

It would have been well had Pilcher used the weight of his authority in popularizing the use of gloves during operation; though the manner of using them and the advantages incident to their use are mentioned, there is nothing said which would lead the reader to believe that the author of this book is convinced of their utility.

In the treatment of hemorrhage, the technique of hypodermoclysis is admirably de-

scribed. Further chapters of this section are devoted to cleansing of the wounds, apposition of the wound surfaces, protection against disturbances of healing, and the relief of complications.

In the treatment of systemic conditions the modern serum-therapy is not noted, probably because the author believes the value of this method still remains to be proven.

The second part of the book is devoted to special wounds. The second chapter of the first section in this part, dealing with gunshot wounds, is particularly to be commended. Throughout the work modern teaching and modern methods are freely set forth. The book should be useful to both surgeons and students, and should receive, if possible, even a more cordial reception than that accorded its predecessor fifteen years ago.

INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. Second Series. Volume III: C to CZGYN.
Washington: The Government Printing Office, 1898.

It is not necessary to do anything more than announce the appearance of the third volume of the second series of this monumental work, which has been the subject of admiration by literary and medical men all over the world, and which has aided medical practice and medical literature to an untold extent. However much we may be inclined to rail at the political misdeeds of our lawgivers, the publication of such volumes as these makes us recognize the fact that some of the money at least is very well spent. We congratulate Dr. Merrill, the officer in charge of the library, upon the completion of this volume.

A PRACTICAL HANDBOOK ON THE MUSCULAR ANOMALIES OF THE EYE. By Howard F. Hansell, A.M., M.D., and Wendell Reber, M.D. With Twenty-eight Illustrations and One Plate.
Philadelphia: P. Blakiston, Son & Co., 1899.

It is not surprising that the students of the Philadelphia Polyclinic listened with much interest to the lectures upon which this book is founded. It is admirable in every respect, and puts before the student the difficult subject of the muscular anomalies of the eye in the most acceptable manner. Indeed, it is not altogether elementary, and every practitioner of ophthalmology will do well to read and digest this manual, which begins with a brief description of the anatomy and physiology of the ocular muscles, then takes up the structural anomalies or the ocular palsies, and goes on to a consideration of heterophoria — that is, insufficiency of the ocular muscles — and heterotropia, or the various forms of squint, and concludes with a brief chapter descriptive of the operations of tenotomy and advancement.

In the chapter on general diagnosis all of the well known tests are described, and Landolt's method of determining the amplitude of convergence especially commended, which, indeed, is believed to be the best test of the real power of convergence. Certainly the authors are entirely correct in stating that the primary prism-convergence found at the first examination in most eyes will not exceed twenty degrees, and that the ratio between adduction or prism-convergence, and abduction or prism-divergence, cannot be accurately stated. As the authors express it, there is no arbitrary standard.

There are one or two sentences in this book that ought to be impressed on students and (with deference) on some practicing ophthalmic surgeons, as golden rules never to be broken, viz.: "In all cases (of esophoria) the estimation of any optical defect under complete paralysis of accommodation, and the wearing, for some weeks, of as nearly a full correction as can be borne with comfort, are essential. No other treatment directed to the restoration of the lost equilibrium should be inaugurated until glasses correcting the ametropia have been worn sufficiently long to remove any pernicious influence born of constantly overtaxed accommodation. The experience of all ophthalmologists confirms this statement, and no surgeon of judgment or ability will apply treatment directly to the muscles until he has given the patient the opportunity to cure himself by wearing glasses." Again, referring to the treatment of exophoria: "In no case is prism or operative treatment to be advocated unless the indications are significant." Again: "In all cases (of esophoria) operation should be reserved as the final means of effecting cure." But the authors are not adverse to operative interference entirely, for they believe, "after all other means have been faithfully tried and failed, esophoria of more than ten degrees will almost invariably demand surgical interference." It is the reviewer's experience that, a few cases excepted, esophoria can be managed without surgical interference.

In esophoria the authors prefer tenotomy divided between the two recti, but in exophoria they agree with Landolt that tenotomy

is not an advisable operation, which in their practice has fallen almost into disuse. They prefer advancement or shortening, but admit that their results have not always been satisfactory, and think that many failures to cure exophoria are due, as Stevens long ago pointed out, to abnormal vertical deviations. Very properly the authors are warm advocates of prism exercise. Space does not permit further quotation from this exceedingly interesting and valuable manual. As it has given the reviewer great pleasure to read it, it gives him still greater pleasure to heartily recommend it to all students of ophthalmology.

G. E. DE S.

DIE NEBENWIRKUNGEN DER ARZNEIMITTEL. Pharmakologisch-Klinisches Handbuch. Von Prof. Dr. L. Lewin.
Berlin: Verlag von August Hirschwald, 1899.

This German work on therapeutics is a large octavo of nearly 700 pages dealing with most of the drugs that are commonly employed in medicine. Having been written by Dr. Lewin we would suppose that it would represent modern views in regard to therapeutics, and those of us who are familiar with Dr. Lewin's good work, particularly his book upon the "Untoward Effects of Drugs," know that he is capable of exhaustive bibliographical labor. Almost every page of the present volume contains references to medical literature, but there is a singular lack of any reference to work which has been done in America. This, of course, is quite characteristic of our French and German colleagues, particularly of the latter. When we state that nothing is said in the article upon Chloroform about the results of the Hyderabad Commission or the researches which have been made by Wood and others in this country, we will indicate how completely the English literature has been ignored. Nothing is said about de Schweinitz's experimental and clinical work upon toxic amblyopias, or of Brunton's work upon the nitrites and chloral. The scope of the book lies between a book on pharmaceutical chemistry and one on practical therapeutics.

THE PRACTITIONER'S MANUAL. By Charles Warrenne Allen, M.D.
New York: William Wood & Co., 1898.

This is a large volume of about 850 pages, composed of text and prescriptions derived from various writers in medical publications and designed to provide the practitioner with suggestions as to the formulæ to be prescribed, and to furnish him with a general outline of treatment. It begins with "abscess of the brain" and ends with "vertigo," and in between these two it seems to deal with almost every ailment to which flesh is heir. A large part of it consists in quotations of two or three lines from various authors. While the publisher has done his work attractively the book is not such as would lead us to recommend it to practitioners: first, because the volume is too bulky; and secondly, because it does not seem to us that the abstracting has been done with such judgment as to make the volume as useful as it might be.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P. LOND.

One of the most interesting items of medical literature in the current month has been the communication of Mr. Clement Lucas to the Royal Medical and Chirurgical Society on "Gonococcus Joint Disease in Infants Secondary to Purulent Ophthalmia." It will be remembered by many that as long ago as 1885 Mr. Lucas drew attention to this association of disease in three cases published in the *British Medical Journal.* At that period the pathology of gonorrhea and the incident complications was a matter of speculation, as it was not till 1885 that Bumm showed the pathogenetic relation of the gonococcus to the urethral discharge. In 1885 Lucas wrote: "I am not aware that any connection between ophthalmia neonatorum and synovitis has ever been observed or described; but there seems no just reason if, as is generally supposed, the synovitis of gonorrhea is the result of absorption of morbid products from the urethral mucous membrane, why the conjunctival membrane should not offer an equally favorable absorbing surface." Fourteen years later Mr. Lucas is able to tabulate from all sources no less than twenty-three cases in which the association has been established beyond all doubt, and moreover is able to render the vague theory of "absorption of morbid products" in terms of modern pathology as "the entrance of the gonococci through the conjunctival mucous membrane to the lymphatics or blood." This further series of cases serves to confirm clinically Mr. Lucas' prediction that there would be shown to exist two forms of joint disease in

infants of the nature of ophthalmial rheumatism: (1) a very acute arthritis, accompanied with much swelling, tenderness, and redness, strongly suggesting a tendency to suppuration; (2) a subacute synovitis, giving rise to a good deal of effusion and pain on movement, but to little or no superficial redness.

Mr. Lucas draws several important conclusions from his new series of cases. As to the origin of the ophthalmia, in eighteen cases it was due to gonorrheal infection from the vagina during labor, while in five cases it appeared at a later period. Again, the time after the initial infection at which the joint disease may be expected to show itself is estimated as the end of the second week or the course of the third. Although almost all the joints are liable to be affected, there is a very marked predilection for the knees, and particularly the left knee. Mr. Lucas declines to assign to chance the frequent affection of the left knee, but advances an elaborate theory to explain it. He points out that mothers and nurses usually by preference carry their infant on the left arm so as to have their own right arm more free for use; in this way the right knee of the child is protected by the nurse's body, while the left knee is more exposed to injury. If this lowering of resistance by injury does actually make the left knee more susceptible to gonococcus infection, the same should be true of every other infective arthritis of infants. We doubt if this would be found statistically to be true of tubercular disease. With regard to the course and duration of the inflammation, the course of the joint disease bears, as one would expect, a definite relation to the course of the disease at the infecting source; and this in turn is largely dependent on the early and active adoption of appropriate treatment. Some cases will then recover in from ten to fourteen days, but the majority run a course of from three to five weeks before complete resolution takes place. Complete resolution is almost invariable, and as a rule with perfect mobility of the joint, even when the inflammation has advanced to the verge of suppuration. Suppuration may occur in the joint, but here in all probability we have to do with a mixed infection; in two of the three cases recorded in which suppuration occurred, the gonococcus was found in the ophthalmial discharge along with streptococci or staphylococci.

In the matter of treatment Mr. Lucas concludes that it should be directed to the early and complete cure of the purulent ophthalmia which is the source of infection; as soon as this has been cured by frequent applications of antiseptic lotions, the joint troubles will subside. Locally he uses evaporating lotions to reduce the surface heat, or wrappings of wool, lightly covered with a bandage, to protect the joint from injury. In older infants it is well to fix the knee so as to insure more perfect rest, but in younger infants this for obvious reasons is inapplicable. Every one will agree with Mr. Lucas in deprecating the use of the aspirator.

Dr. Ashley gives a timely warning of the dangers of chlorate of potassium in the treatment of disease in the *Edinburgh Medical Journal.* These remarks are an appropriate sequel to the reduction of the dose in the new Pharmacopœia from 10–20 grains to 5–15 grains. The salt is an invariable member of the domestic armory, and so far as our own experience goes the only recognized limitation of dose is the amount that can be conveniently dissolved in the mouth in the form of lozenges in the course of twenty-four hours. Dr. Ashley condemns the drug as practically useless in simple acute tonsillitis, and in the specific tonsillitis of scarlet fever and diphtheria. With regard to the two latter diseases this is undoubtedly the case, but we fancy that with regard to acute tonsillitis he would find himself in a minority of opinion. It often seems to act like a charm, given either internally or taken locally, but if persisted in for more than a short time it has often seemed to us to serve to keep up the irritation. For ulcerative stomatitis Dr. Ashley gives three- to five-grain doses to a child of three to seven years every four or six hours, so that the daily dose amounts to about twenty grains. He prefers to give the dose by the stomach rather than apply it locally, as the local effect appears to be greater when the salt is given off in the saliva than when applied directly to the ulcer. Dr. Ashley records a case of alarming toxic symptoms in a child of fourteen months from fifteen grains per diem. Short of such serious symptoms, chlorate of potassium is a not infrequent cause of chronic anemia in children with severe depression and enlargement of the spleen.

The British public is slowly awaking to the fact that it is nursing in its bosom a serpent—or rather a multitude of serpents—in the form of the "conscientious objector" to vaccination. Unofficial statistics seem to show that in the closing four months of the

past year the plea was allowed in the case of no less than a quarter of a million infants. Probably, however, this cannot be accepted as an average number for similar periods, as no doubt the objection was registered in many instances on behalf of children of riper years, who had previously defied the law. When we find that in one town no less than 27,000 children were thus exempted, the magnitude of the danger may be readily appreciated. The recent epidemic in Gloucester has shown what mortality may be expected in these days of rapid communication and traveling, of compulsory school attendance, and of congregating centers for worship, for music, for social intercourse, multiplied a hundredfold beyond the number of Jenner's time. Mrs. Garrett Anderson, in a vigorous letter to the *Times* of January 10, exposes the logical absurdity of "isolation" as a substitute for vaccination. If nobody be vaccinated, the only possible form of isolation is banishment to some desert spot, the reaching of which in a civilized country must defeat the very object for which isolation is sought. The presence of a medical man or a nurse alike would violate the practice of isolation, as not being protected by vaccination, they will be susceptible to infection. The great question is how to deal with this evil. Some concerted action on the part of all who themselves have been vaccinated might do much to check the spread of the evil. It has been suggested that no one should be employed either in domestic service, in trade, or in any public office who has not been vaccinated. We fancy that such a patent interference with the liberty of the subject will hardly commend itself to Englishmen. The fact is that the only solution of the dangerous situation created by the mischievous legislation of the present Government lies in a repeal of the existing law. Alas! the measure has the imprimatur of Lister. And this is the testimonial of the father of bacteriology to the memory of Jenner.

Mr. Chetwood-Aiken calls the attention of the profession to the advantages possessed by bromohydrate of arecoline as a myotic. The drug does not seem to have received the clinical notice it deserves, either in this country or abroad. Arecoline is one of the alkaloids of areca nut, the seed of *Areca Catechu*, and the bromohydrate is a white crystalline soluble salt. "Its physiological action is closely allied to those of pilocarpine and pelletierine. Taken internally it causes vomiting and diarrhea, and it is in addition a sialagogue, diaphoretic, and vermifuge." The solution employed in ophthalmic practice is a half-per-cent aqueous solution, and its first application causes a tingling sensation, which passes off in two or three minutes, when myosis commences. Full myosis is obtained in from ten to twelve minutes and is accompanied by spasm of the ciliary muscle; this ciliary spasm may appear prior to any signs of myosis, or not until the pupil is fully contracted. Full contraction lasts for about half an hour, and then lessens, so that the eye regains its normal state in from one to one and a half hours. When the eye is healthy its tension is very little, if at all, decreased by it, while in glaucoma it is much superior to eserine. There are none of the unpleasant after-effects of eserine. It is more rapid and more powerful than eserine, but its effect is less enduring. It is more potent than eserine in antagonizing the mydriasis of homatropine. Its aqueous solution does not undergo decomposition even after prolonged keeping.

Dr. Calvert at the Royal Medical and Chirurgical Society, in a lucid paper, exposed one of the fallacies that are handed down from text-book to text-book to the embarrassment of students, viz., that aortic aneurism is in itself a cause of hypertrophy of the left ventricle. The statistics of post-mortem examinations at St. Bartholomew's Hospital showed that in 124 cases of aneurism of the arch of the aorta, in sixty-eight there was no hypertrophy of the left ventricle; in forty-seven cases the hypertrophy was referable to other causes that were present; while in the remaining nine cases the hypertrophy could not be shown to be due to the aneurism to the exclusion of other causes present. *A priori* one would hardly expect aneurism to cause hypertrophy, seeing that it increases the vascular area. Dr. Morrison suggested that the important feature in the production of hypertrophy of the left ventricle was leakage through the aortic valves.

In a recent letter we referred to the remarkable influence of a large dose of sulphonal on a case of delirium tremens. Now Dr. Mortimer has been recommending the Chelsea Clinical Society to treat their cases of delirium tremens by inhalation of chloroform. The immediate result of the inhalation in Dr. Mortimer's case was six hours' continuous sleep, followed after an interval (during which the patient was quiet) by sleep lasting nearly the whole of the following day and night, accompanied by rapid recovery in all respects. It seems that a similar course

of treatment has been recorded in a few other cases with benefit, and with none of the ill effects liable to follow on administration of anesthetics to alcoholic subjects. Since attention has been called to the toxicity of sulphonal several cases have been recorded in various parts of the country. One of the latest is a case of acute poisoning, only just escaping a fatal termination, brought on by 35 grains of sulphonal in divided doses of 20 and 15 grains at an interval of twenty-four hours. This is, of course, an instance of special idiosyncrasy to the drug, but we think it should be noted that the patient had been taking bromide of potassium, and it is a question how far the activity of the sulphonal was enhanced by the previous bromide treatment. Unfortunately it is the public, who have taken the administration of sulphonal into their own hands, that need the warning, more than the medical profession.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

Dr. Brocq, physician of the Paris hospitals, and specialist in skin diseases, has tried yeast in the treatment of furunculosis, and has found it most efficacious. This treatment had been already mentioned by Follin in his treatise of surgery, as well as by Gingeot in his work on "Rational Treatment of Furunculosis," and they had based their appreciation of this medicinal agent on what had been mentioned in a letter written by Dr. Mosse to the English *Lancet*. Dr. Debouzy, of Wignelies (Nord), had also spoken of this drug. Dr. Brocq began trying it in 1894, and has used it on about fifty patients suffering from diverse complaints, such as carbuncle, boils, and infectious or inflammatory affections of the skin.

Dr. Brocq has long been subject to periodical attacks of carbuncle, occurring every four or five months, and replacing former attacks of asthma. From 1894 to 1895 he tried colchicum, a drug which he had recommended, but this substance produced gastric trouble, so he decided to see how yeast would act in his case. Its effects have been most curious and apparent, and Dr. Brocq, in a recent article on the subject, has described at great length how the pains diminished rapidly after the third day, all edema and inflammation being checked in their progress, and in some cases suppuration being warded off. Dr. Brocq has described several other cases where surprising results were obtained most rapidly, and there was no recurrence of the disorder. He uses fresh beer yeast. When this substance is bought from the Paris brewers it seems to be a sort of light chestnut-colored cream, and is uniform in appearance, but on being allowed to stand three distinct layers are formed. The latter should be well mixed together, and a heaping teaspoonful taken at each meal in a glass of water or beer. Bakers' yeast can be also ordered, but it is not so efficacious. A piece about as large as a small hazelnut may be mixed with honey, as Dr. de Backer recommends, and this quantity is to be taken thrice daily at each meal. The full dose is on an average three teaspoonfuls daily, but it may be increased to nine or ten in some cases. The administration of this drug may cause indigestion, and in some rare cases diarrhea. These symptoms are not very tenacious, and by using this medication discreetly no untoward results need be expected. Dr. Brocq has not found it necessary in most cases to use complicated external applications. As to the yeast, it should be quite fresh, and changed every day in summer and every two days in midwinter.

Dr. Plicque, one of the most distinguished among the younger generation of Paris physicians preparing for the examinations that entitle them to the position of physician of the hospitals, has recently written an essay on the treatment of Addison's disease. According to the author, we are at the present time better prepared to fight this disease, and this is due not only to the progress made in opotherapy, but also to a clearer knowledge of the pathogenesis of this affection and a more rational treatment of its principal symptoms—asthenia, pains, and gastrointestinal symptoms. Opotherapy is, of course, the keystone of any treatment whatsoever, as being specific and clearly useful. But beside this there is what one may call the symptomatic treatment of the different symptoms, and we shall begin by studying the asthenic condition, so predominant in this malady. This latter condition would seem to be due to an autointoxication by the toxins produced by the action of the muscles which are no longer destroyed by the suprarenal capsules. It is therefore indicated to recommend avoiding all physical work or muscular exertion, or at least to reduce it to a minimum. When this can be obtained, combined with a sojourn in the country with a favorable climate thrown

in, very appreciable results can be reasonably expected. Great care should be taken to avoid any sudden fatigue, which is apt to destroy all the good effects obtained previously. The physician should give minute directions as to diet. The latter should be abundant and nourishing, but there is one point to be observed: the kidneys are often at fault and there is danger of autointoxication. Certain gastric troubles, such as loss of appetite, vomiting, diarrhea, are due to renal insufficiency. In such cases a milk diet is beneficial; but it should not be continued too long, and as soon as possible the yolk of eggs, finely mashed vegetables, white meats, and very fresh fish should be added. Raw meat should be employed only when easily assimilated. Meat powders, when quite fresh, are palatable and very nutritious. As for oysters, shell-fish, brains, marrow, cod-liver oil, butter, and other fatty foods, they are to be employed according to the patient's taste.

A certain number of drugs will be found useful. Oxygen is indicated when there is vomiting and gastric trouble. Sulphur baths, rubbing of the skin, and massage give good results, but hydrotherapy on the other hand is absolutely contraindicated. Electricity has been highly spoken of by Jaccoud and Semmola. The static bath administered with sparks on the painful regions has proved effective, as in all such cases; faradization of the muscles could only prove a source of fatigue. When there is gastric intolerance, galvanization of the pneumogastric nerves is sometimes successful when vomiting is incessant. Strychnine and arsenic are good tonics to be used in such cases, but ought to be given in moderate doses with periods of rest. Dr. Robin has used injections of glycerophosphate of calcium (20 centigrammes only), and has obtained thereby a steady amelioration. Glycerin, which has been much praised by Greenhow, should be given in moderate doses of forty grammes, for instance, ten grammes of brandy or rum being added to cover the taste. Iron, quinine, kola, or coca can also be employed. The attacks of pain, which are sometimes very sharp, may be relieved by external methods, such as massage, electrization, spraying with chloride of methyl, or by the exhibition of drugs, such as antipyrin or salicylate of sodium. These are preferable to morphine, to the use of which may be perhaps attributed certain cases of sudden death by rapid uremia. Syphilis at times produces in women some of the symptoms of Addison's disease, and in such cases a specific treatment is indicated, but if no appreciable result is produced immediately, this treatment should not be continued, as it has a most pernicious influence upon the disease. Suprarenal opotherapy, though sometimes without effect in cases attended by advanced cachexia, has given good results in the hands of Béclère, Marie, and Dieulafoy.

Subcutaneous injections must be employed with precaution. D'Arsonval gives the following formula:

Suprarenal capsules, 10 grammes;
Glycerin at 30°, 10 grammes.

The capsules are chopped up fine and put into glycerin. Five grammes of sterilized solution of salt water, 25:1000, must be added. Sterilization can be obtained by means of carbonic acid under pressure after filtration, and of the solution thus obtained two centigrammes can be injected daily, diluted in equal parts of boiled water. When given by the mouth capsules containing ten centigrammes of suprarenal capsular substance are to be administered, two to four each day; or the fresh substance may be employed.

It is sometimes difficult to arrest palpitation in chlorosis or anemia. Iron, cardiac tonics, and digitalis are useless, and sometimes injurious. A point which has been often enough overlooked, says Dr. Milhiet, of Paris, is the vascular spasm and consequent arterial hypertension. The symptoms observed in such cases are cold in the extremities, alternate paleness and coloration of the face, and emission of light-colored urine. To remedy this condition massage and cold douches may prove beneficial. Dr. Huchard recommends the following liniment:

Alcoholic extract of juniper, 120 grammes;
Alcoholic extract of lavender, 60 grammes;
Essence of turpentine, 30 grammes;
Menthol,
Thymol, of each 0.50 centigramme.

Vasodilatory remedies should be employed. Trinitrine may be given in doses of six to ten drops daily (alcoholic solution one-per-cent); or one may use tetranitrol or tetranitrate of erythrol, a new vasodilatory agent tried by Bradbury and Broadbent in England. Its action is slower, but more lasting, than that of trinitrine. Its effects are noticeable only fifty minutes after ingestion, but last five to six hours. The maximum dose of tetranitrol is 0.03 to 0.05 centigramme for one dose, given in an alcoholic solution.

Our readers may be interested to know what are the latest results of Drs. Roux and Borrel's treatment for tetanus. In a thesis published on this subject by Dr. Delvincourt and analyzed in the last number of the *Journal of Therapeutics* by Dr. Sainton, house physician of Professor Debove, two cases followed by recovery are cited. An active intervention is necessary. In one case the operation took place thirty-two hours after the initial symptoms of masticatory trouble, and eight hours after trismus had set in; and in the second case six hours afterwards. Uterine tetanus seems to be as fatal as ever, as the five cases cited so far were followed by death.

ROME LETTER.

By John I. Eyre, M.D.

Early in 1898 the Italian Society for the Study of Malaria was established in Rome, largely through the exertions of Dr. Celli, the professor of hygiene in the University of Rome, and whose name is so well known in connection with that of Marchiafava and other Roman scientists in relation to their researches in the plasmodium malariæ. The funds provided by this Society have enabled Professor Celli, Professor Grassi, and several other Italian scientists to study malaria in its various phases during the past summer in the most desolate parts of the Roman Campagna. Their discoveries have been summarized by Celli in an interesting report which he read at the first annual meeting of the Society lately held in the Institute of Hygiene of Rome. As this report contains an account of several important researches on malarial fevers I give a translation of it almost in full as my first contribution to the Therapeutic Gazette.

Professor Celli began by stating that the report embodied the results of the investigations on malaria made by members of the Society during the past season of fevers—that is, from the beginning of July till the date of the meeting (Dec. 3, 1898). It was known that in recent years the life of the malarial parasites in the blood of man and of animals had been well recognized. Notwithstanding this, two problems of enormous interest for humanity had remained enveloped in darkness—namely, how the malarial germs live in the environment, and how from the environment they return to infect man and the lower animals. When these problems are solved one may hope to find the mode either of killing the maleficent germs where they lodge, by means of direct drainage, or of protecting man and the useful animals from them.

But may not this latter scope of preservation, the supreme end of all our studies, also be reached by another way—that is, by means of substances which give artificially that immunity which Nature sometimes concedes both to man and the lower animals? In reference to the first problem it must, above all, be remembered that the Mexican authors Smith and Kilborne have demonstrated, and Koch has confirmed, that certain ticks are undoubtedly the vehicle of bovine malaria.

As to the vehicles of human malaria, in the Institute of Hygiene at Rome the numerous and repeated attempts to reproduce malaria in birds by the inoculation both of malarial earths and of cultures of ameba which there are found were always fruitless, and water as a vehicle of malaria was also excluded, which has been abundantly confirmed elsewhere. On the other hand, some authors had already thought that mosquitoes were in some way connected with the biology of the malarial parasites. Thus, Laveran and Manson had maintained that man is infected by drinking water contaminated by mosquitoes, in which, after the puncture and the sucking of the malarial blood, the infective parasites are developed as an intermediate host.

Bignami, on the other hand, by the process of exclusion and with indirect proofs, came to the conclusion that malaria bears itself in respect to man as if it were inoculated by mosquitoes, and Bignami and Dionisi have also, since 1894, endeavored directly to prove this; but through want of means they have been unable to continue their researches; and in the past year only has Dionisi been able to initiate some experiments which were favorable to the hypothesis of inoculation.

Meanwhile, under the wise guidance of Manson, Ross of Calcutta succeeded in determining the cycle of life of the malarial parasites of birds in the body of a particular species of mosquito.

The direct proof of the possibility of transmission of human malaria by these insects was then more than ever urgent; and fortunately it was also possible, thanks to the means that the Society from its initiation has been able to obtain.

The members were able to institute ex

periments in two modes: that is, to investigate how malaria acted in relation to a certain number of men living in a highly malarious place, and protected in an absolute way from the bites of insects; and to investigate if individuals never subject to malarial fevers, living in a healthy place and bitten by mosquitoes captured in malarious places, would catch the fever.

The first mode was attempted by Fermi in the Pontine marshes, but many difficulties were met with in carrying out the experiments in a rigorous way. The second was therefore adopted. In a room of the Ospedale S. Spirito individuals were put to sleep who had resided for some years in the hospital, and who never had had malarial fevers. In this room adult mosquitoes brought from malarious places or developed from larvæ collected in the Campagna were set free.

Thus four experiments were made from the end of July onwards. The first, in two individuals with adult mosquitoes captured in Porto, was interrupted after a few days for want of sufficient material. The second, in one man only, with mosquitoes developed from a collection of larvæ, was continued from August 8 to 28, and was interrupted when the patient had a slight rise of temperature with a sensation of chill and malaise, which ceased without further consequences. The third, in a man named Sola, was conducted in the same mode from August 24 to September 19, being interrupted when Sola began to suffer from malaise and headache, with a slight rise of temperature. In Sola also this remained without result. Analogous experiments, and with similar negative results, were made by Fermi at Terracina and by Grassi at Rovellasea.

Meanwhile, starting from the consideration that if mosquitoes truly inoculate the malarial parasites in the localities where malaria develops, there are several species to be found, Grassi undertook a series of comparative researches in the most varied parts of Italy during the past estivo-autumnal season. He came to the conclusion that in the malarious places several species of mosquitoes, large and small, exist in abundance which do not find the suitable conditions for reproduction in non-malarious places. Taking into consideration the abundance of the above mentioned species in the season of fevers, Grassi came to the conclusion that three species must be held to be extremely suspicious. They are: the *Anopheles claviger*, the *Culex penicillaris*, and the *Culex malariæ*.

To the puncture of these three species, captured in Maccarese, that same Sola, in vain bitten by other mosquitoes, was subjected by Bignami, in association with Grassi. This experiment lasted from September 28 to October 21. On November 1 Sola was seized with grave malarial fever, of which he was perfectly cured by means of quinine; in his blood were found parasites of the estivo-autumnal species.

The attendant of the laboratory of comparative anatomy, who went to capture the three above mentioned species of mosquitoes, and which he captured as they bit him, was meanwhile also infected with estivo-autumnal fever.

Grassi has also classified the mosquitoes employed in the negative inoculation experiments, and he has found the *Culex pipiens* to be the most common of the mosquitoes which are diffused even in non-malarious places. He adds that the gray mosquito, which Ross has proved to be the propagator of the malarial parasites of birds in India, is none other than the *Culex pipiens*. Ross himself has seen that the parasites of the estivo-autumnal fevers of man do not develop in the body of this mosquito.

These researches, conducted with all the care and with all the precautions possible, give the first experimental proof of the fact that malaria is produced by inoculation; they demonstrate besides that the *Culex pipiens*, the most common mosquito, is innocuous for man; and they indicate that those species which Grassi has found exclusively in malarious places are capable of transporting the infection.

But is malaria contracted solely by inoculation? Certainly inoculation is the only means up till now experimentally demonstrated. Apropos, Bignami has made other researches directed to the obtaining of new proofs for or against the theory of inoculation. He has made some experiments which demonstrate that the malarial parasites of the blood do not resist even a brief desiccation; still more, he has seen that in the peribronchial glands of individuals coming from highly malarious places no form is found which could be interpreted as of a parasitic nature, such as might be presumable if the malarial germs were inhaled like dust.

In his turn Bastianelli has been occupied together with Bignami in the morphological study of the malarial parasites, putting it in relation with the research on the biology of the parasites external to man; directing it,

therefore, principally to those parasitic forms which, according to the opinion of many, are destined to ensue in the environment life of the parasite—that is, the semilunæ of estivo-autumnal fevers and the flagellate bodies. Opinions were divided on the structure of the semilunæ, and nothing was known of the structure of the flagellate bodies in man.

The results of these beautiful morphological researches may be summarized in a few words:

1. The semilunar bodies constantly contain chromatin, which is found in the central part of the semilune in a clear space—that is, the nucleus of the parasite. This result was constantly arrived at with the study of the preparations in which the humidity swelled the nucleus and its chromatin, and with another method Grassi and Feletti have arrived at the same conclusions.

2. The flagella are constituted principally of a protoplasmic part and of a central part of nuclear substance.

3. The flagella derived from the masses of chromatin of the nucleus of the semilunæ and of the large bodies not divided of tertian, which become swollen, reach the periphery, and lengthen in the form of flagella.

4. Some flagellates exist whose flagellum is constituted exclusively of protoplasm, the central part remaining undivided, constituted by the chromatin of the semilunar body.

This observation may be invoked as supporting the doctrine that the flagella have importance in the propagation of the species external to man.

Meanwhile it is certain that Bastianelli, Bignami, and Grassi have succeeded in observing the cultivation of the semilunæ of man in the body of the *Anopheles claviger* Fabr. (synonym *A. maculipeunis* Meig.). Consequently Grassi maintains that this large mosquito with four spots on its wings, already declared by him to be the true index, the true spy of malaria, is the definite host of the malarial parasite of estivo-autumnal fevers, and is, therefore, a terrible enemy of humanity. That which happens in the environment to the other forms of malarial parasites of man, and more especially that which happens to them in the other mosquitoes of malarial places, is now being studied. To-day we can add that also the parasite of the spring tertian develops in the body of the same *Anopheles claviger*.

Meanwhile Fermi has tested a hundred substances believed to be culicifuge, using them either alone or combined in the form of a cutaneous ointment, the most practical and the most reconcilable with the habits and the necessities of life in the open air of the workers in the season and in the places where malaria exists. He has thus demonstrated that two substances at least have all the necessary qualities for this scope, and with them he proposes to make extensive prophylactic experiments on man in the coming malarial season.

This year Celli himself has been able to make a large experiment of preservation of bovine malaria, in two contiguous farms worked by Lombards, and cultivated by means of irrigation.

In the Cervelletta farm, where in the past this homicidal disease was extremely prevalent, all the cows were always kept in the stalls, to prevent their being attacked by ticks, and if any of these appeared, they were quickly removed. A regular treatment with arsenic was also adopted. Of all this vast herd, not a single animal was attacked with malaria, while in the contiguous farm of Bocca di Leone, where no prophylaxis was adopted, and the cows were allowed to graze in the fields, in one week all were taken ill, and fifty-four per cent of them died from malaria; and Miss Foa, in Grassi's laboratory, found in one an enormous quantity of the *Ripicephalus ammulatus*, or the same species of tick which in America propagates the same disease.

The financial importance of this experiment is evident. In other times, even very near to ours, this bovine malaria has destroyed here in the Campagna whole herds of milch cows, extensive irrigation works, and large industries in cheese-making. To-day, instead, science can suggest the means of avoiding such economic disasters.

Now coming to the second of the colossal problems above indicated—that is, to the natural immunity from malaria, and the mode of artificially reproducing this immunity—it must be admitted that the researches apropos are very few, because they are very difficult and very expensive.

Two years ago Celli and Santori found that inoculations of the serum of the blood of animals immune to every species of malaria succeeded in lengthening, sometimes extraordinarily, the period of incubation of experimental malaria.

The researches carried out during all the past season of fevers have led to the following conclusions:

1. The principles on which serum immunity and serum-therapy are founded are of no value for malarial infection. In fact, it is beyond question that the serum of the blood at the beginning of the fever contains a pyogenic toxin, and it is certain that the same serum in the defervescence of the fever has not an immunizing property either for the patient himself (active immunity) or for others (passive immunity), and for the latter it has no curative action, just as the serum of the blood of spontaneous cures and of individuals immune to malaria has no immunizing action. They are continuing their experiments to discover whether the cellular elements of the blood in the above mentioned conditions contain some toxic principle, respectively immunizing or curative.

2. The inoculation, even abundantly repeated, of the blood of bovine malaria does not protect man from his malaria, just as the serum of the blood of cattle cured from this malaria does not protect him.

3. Neither have experiments of opoimmunity, in respect to opotherapy, with the juices of organs (brain, spleen, bone-marrow, lymphatic glands) of cattle which live in a very healthy state in malarious regions, hitherto given results positively favorable to man.

4. The serum of the blood of the horse treated for a long time with large progressive doses of quinine has proved to be inefficacious both as a preventive and a curative of malaria in man and animals.

5. Immunity against the natural infection of malaria may be congenital or consecutive to long-continued disease. Congenital immunity is sometimes maintained with a life of toil, with diminished alimentation, with excessive work, and it is independent of the faculty that the skin may have of being punctured by mosquitoes, and of the degree of reaction which may follow these punctures.

Congenital immunity is more stable than consecutive; it also rarely resists the experimental infection — that is, inoculations of large doses of blood containing many malarial parasites.

After these researches it is more than ever urgent that the mechanism of such immunity be thoroughly studied in the animals nearest to man. Making it in cattle is too expensive; the Society cannot give the means which the above mentioned American authors received in profusion.

Fortunately Dionisi has found parasites perfectly analogous to those of human malaria in some species of bats; that is, he has found a pigmented parasite, similar to one of those of the spring fevers of man, and a parasite without pigment, resembling that of the estivo-autumnal fevers of man. And Casagrandi, in his researches on malaria of animals of the Pontine marshes, has observed parasitic forms within the red corpuscles of a small mammal of the Campagna.

To terminate the list of the researches made by the members, Professor Celli adds that Dionisi has studied in the past summer and autumn how anemia is produced in the various malarial infections, and what quantitative and qualitative alterations of the blood take place in nephritis from malaria and in hemoglobinuria; while, on the other hand, Santori has prepared a map of malaria in the Province of Rome, on the basis of the statistical and meteorological observations of the last decennium. [It is perhaps advisable here to note that malaria now rarely, if ever, occurs at any season of the year within the walls of the Eternal City.] All these investigations will be published *in extenso* in the Transactions of the Society.

And now and always *fervet opus!* The members are continuing their studies, and they rely on the pecuniary aid which the Society willingly gives them for the payment of the necessary expenses.

Meanwhile, in India, England has for the study of malaria placed such means at the disposal of Ross as to enable him to telegraph from Calcutta to Edinburgh a full account of his splendid researches.

Germany has equipped, through the initiative of the Colonial Society, a great scientific expedition to Africa, with Koch at its head, who during the past summer visited Rome.

Belgium has provided 50,000 francs for the study of malaria in the Congo.

And thus the civilized nations, after having subdued malaria in their own house with great and expensive irrigation works, are preparing to redeem their colonies.

Italy, said Professor Celli, where malaria keeps about five million acres uncultivated, and every year on an average attacks two millions of its most useful sons, and kills 15,000 of them, cannot, must not, remain behind in this noble scientific competition! It in the past has done its duty; that it will fulfil it also in the future is the most fervent vow which from the bottom of their hearts they raise in this temple of science at the first meeting of the association.

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Original Communications.

AN OPHTHALMIC CLINIC AT THE JEFFERSON MEDICAL COLLEGE HOSPITAL.

BY G. E. DE SCHWEINITZ, M.D.,
Professor of Ophthalmology.

A number of interesting cases await our consideration, and from among these I shall select several which illustrate important points in ocular therapeutics.

CASE I.—*Abrasion of the Cornea and its Treatment: (a) with Non-infected and (b) with Infected Surroundings.*—This patient, a man aged about twenty and a shoemaker by trade, was struck in the right eye yesterday with an auger bit. He came at once to the hospital and was cared for by the resident surgeon until the opening of the Dispensary for Diseases of the Eye, about six hours after the injury. A drop of two-per-cent solution of fluorescin instilled into the conjunctival sac (which drug, you remember, colors green any spot on the cornea deprived by injury or disease of its epithelium) revealed two large abrasions of the cornea and a number of linear lesions passing like ridges across its face. There was no unhealthy secretion on the conjunctiva, no disease of the ciliary margin, and, most important of all, normal

lacrimonasal passages. A drop of sterile atropine solution was put into the eye in order to prevent or, perhaps, to relieve congestion of the iris; the conjunctival sac was thoroughly flushed with a four-per-cent solution of boric acid, particular care being taken to cleanse the ciliary borders; and the lids were immobilized by a compress bandage. It is just twenty-four hours since this dressing was applied, and now you observe the eye is quiet, the abrasions have healed, as is proved by the negative result of the fluorescin test, and the corneal mirror is bright and normally reflects an object passed in front of it.

I have dwelt at some length upon this case because it teaches an important lesson—the lesson that every abrasion of the cornea must be scrupulously protected from infection until the epithelium has been regenerated. Just such abrasions as these will, if neglected, become the gateways of infection through which pathogenic bacteria pass to inoculate the true corneal tissue and produce the various types of sloughing ulcer of this membrane. These bacteria have their habitat in the conjunctiva, the ciliary borders, the nares, and the lacrimal passages. Of the various microorganisms, we are most likely to encounter in typical serpiginous ulcers the pneumococcus—that is, the Fraenkel-Weichselbaum capsulated diplococcus—and in other types of sloughing ulcers staphylococci and streptococci, or a mixed infection. Schizomycetal infection, which occurs as a rarity, is practically always due to the aspergillus fumigatus.

Suppose this abrasion had occurred on a cornea surrounded by infection—for example, on the cornea of this girl, from whose lacrimal sac, you observe, a thick pus is made to exude upon the slightest pressure. What would have been the treatment? That would have depended somewhat upon the condition of the abrasion. If this was still recent, the conjunctival cul-de-sac would have been sterilized (as well as this is possible) by frequent flushing with a saturated boric acid solution, or following Haab's recommendation, with a one-fifth per cent solution of sulphate of zinc in 1:10,000 of bichloride of mercury; the canaliculus dilated, slit if necessary; and the lacrimonasal duct thoroughly irrigated with some antiseptic solution—for example, 1:8000 bichloride of mercury, 1:6000 formaldehyde, 1:500 nitrate of silver. Naturally, the patient would have been under observation and the collyria and lacrimonasal irrigations employed as frequently as necessary to keep the surroundings reasonably clean.

If an abrasion of the cornea should develop a suspicious haziness of its border, or careful bacteriological examination should demonstrate infection, then proper prophylaxis would demand an application to the abrasion itself of some chemical substance which combined the properties of a germicide and a caustic. Of these I am inclined to think the best are nitrate of silver two-per-cent, carbolic acid, tincture of iodine, and formaldehyde 1:50, care being taken that only the abraded surface, which can be accurately outlined by means of the fluorescin, is touched. Recent investigations have indicated that in pneumococcal infection of the cornea the colonies are deep, and perhaps agents such as I have described do not reach them. Therefore, if any sign of spreading of the infection should appear it would be advisable to destroy that area with a light touch of the galvanocautery. Please bear in mind that I am speaking of an abrasion of the cornea which has become infected by surrounding purulent matter, or if it has not become infected, is in grave danger of this accident, and not of the treatment of ordinary abrasion of the cornea with non-infected surroundings as before described and illustrated by the patient.

CASE II.—*Dacryocystitis and its Treatment; Indications for Excision of the Lacrimal Sac; Conditions which May be Mistaken for Dacryocystitis.*—The second patient, a girl aged twelve, has been coming to the dispensary for a long time on account of a purulent discharge from the left lacrimal sac, associated with typical inflammation of the surrounding conjunctiva and margin of the lid, the so-called lacrimal conjunctivitis. Exactly when this affection began is not clear from the history, nor is it important. It has existed now for many months, and the treatment has been division of the canaliculus, introduction of probes to restore patency to the lacrimonasal duct, irrigations with various antiseptic substances, and intranasal treatment to relieve rhinitis, the evidences of which are still manifest, and to remove a hypertrophied turbinated body. To restore the patency of the duct large probes (we are here accustomed to use Bowman's probes as high as No. 8, having a diameter of about two millimeters) have been employed. Dr. Theobald, however, does not believe that probing is thorough until a probe of about twice that diameter has been used, and in about two-thirds of all his cases,

including children as well as adults, he introduces his No. 16 probe, which has a diameter of four millimeters. I think there is very little doubt that a probe of this size would readily pass through the duct of the present patient, but I am inclined to think that the results would be no better than those reached with the No. 8 or No. 10 Bowman probe, because the lining of the sac and of the nasal duct is in a state of chronic inflammation comparable to the same pathological condition present in the bladder in chronic cystitis. If subsequent treatment continues negative, I shall try the operation of excision of the lacrimal sac and lacrimonasal duct—that is to say, excision of the pyogenic membrane. The sac is exposed by dividing the overlying integument layer by layer, the incisions being curvilinear. It is difficult to dissect the wall of the sac from the skin and from the bone, but it is essential that it as well as the nasal duct shall be thoroughly removed.* Some surgeons prefer to destroy the sac by means of caustic or the galvanocautery. As the result of this operation, if successful, the purulent discharge ceases to appear in the eye, although the drainage system is obliterated and necessarily there is epiphora. Should this epiphora become exceedingly annoying, it would be permissible to excise the lacrimal gland; but most patients, if one may credit the accounts of those who have done the operation most frequently, do not complain of the epiphora except in windy weather, or at least do not complain of it excessively, and naturally very much prefer it to the purulent discharge.

Because a purulent material appears in close proximity to the lacrimal sac one must not be too ready to diagnosticate lacrimal sac-disease. In other words, a fistula of the orbit opening just above the inner canthal ligament may be due to disease of the ethmoid or anterior frontal cells. In a case of this character recently under my care the lacrimonasal duct had been probed time and again for more than eight years, although dacryostenosis as such did not exist, for the carious track led into the region of the anterior ethmoidal cells, or that detached portion of them, at least, to which the name lacrimal cells is now given.

Occasionally we encounter disease in front of the lacrimal sac—so-called prelacrimal abscesses and prelacrimal cysts—which does not actually arise from the sac itself, but which may be the result of an injury, of the breaking down of a gummatous growth, of an abscess, and readily may be mistaken for lacrimal sac-disease itself. The passage of a probe, of course, would indicate that the pocket did not lead into a sac terminating in the duct, but into a cul-de-sac. More rarely, buccal fistula occurs below the margin of the orbit and might be mistaken for lacrimal fistula. Proper investigation with a probe would settle the differential diagnosis.

CASE III.—*Acute Contagious Conjunctivitis.*—This child, three years of age, shortly after convalescing from an attack of influenza of the pulmonary type, was attacked with an inflammation of the eye having the following characters: Deeply injected conjunctiva, through which are scattered small hemorrhages; swollen and edematous lids; and free secretion of muco-pus, which collects in strings and especially in masses at the inner canthi. In other words, this is a case of acute contagious conjunctivitis, sometimes called epidemic conjunctival catarrh, and vulgarly known as "pinkeye."

In the conjunctival secretion of many of these patients a small bacillus—known as Week's bacillus—may be found, which is believed to bear a specific relation to the disease. It would seem, however, that an exactly similar conjunctivitis is often caused by the pneumococcus and perhaps by other microorganisms. I shall have the secretion examined and determine exactly the bacterial contents. The treatment should be: Isolation, if possible, as the disease is markedly contagious; frequent conjunctival irrigation with a saturated boric acid lotion, or with mercuric chloride (1:10,000); and frequently changed ice compresses if the swelling of the lids (which should be everted once a day and the tarsal conjunctiva brushed with a one-per-cent solution of nitrate of silver) is considerable. Under such treatment the duration of the disease is, so far as the acute stages are concerned, from four to six days, although it requires about two weeks for the restoration of the conjunctiva to full health.

CASES IV AND V.—*Relapsing and Subacute Catarrhal Conjunctivitis.*—The patient, aged twenty-five, a clerk by occupation, in good general health, has been subject to "attacks of conjunctivitis" for a number of weeks. The ordinary symptoms of acute catarrhal conjunctivitis appear under treatment gradually to subside, but the mucous membran-

*At the next clinic this operation was performed and a greatly thickened lacrimal sac and nasal duct removed.

never regains an entirely normal appearance, being somewhat congested and a little opaque, while the margins of the lid are somewhat reddened. The other patient, a man somewhat older and a tailor by trade, presents a similar conjunctival condition, described in a word as subacute conjunctivitis, but has no history of acute exacerbations. As you probably know, in recent times, in many cases of subacute conjunctivitis, particularly such as stubbornly resist treatment, a diplobacillus will be found in the secretion, originally isolated by Morax and Axenfeld abroad and especially studied in this country by Gifford. The germ has also been found here by myself in some cases in the Philadelphia Hospital, and by Dr. Sweet in a number of cases in this clinic. I will therefore make a culture from each of these conjunctivæ and later report the results. Should the bacteriological examination reveal the diplobacillus of Morax and Axenfeld, the proper local treatment will be the application of sulphate of zinc (from one-half to two per cent, according to circumstances), under the influence of which diplobacillus conjunctivitis is rapidly cured. But do not allow the search for microorganisms to cause you to forget other important etiological factors in subacute and recurring conjunctivitis, the two most important of which are refractive error and rhinopharyngeal disease. Therefore each of these men will be investigated from these standpoints and treatment directed according to the findings.

LUMBAR PUNCTURE FOLLOWED BY RELIEF OF SYMPTOMS—FOUR CASES.

By J. Madison Taylor, A.B., M.D.,
Philadelphia.

It is particularly important to put on record sound testimony in behalf of any therapeutic measure which offers the smallest possibility for relief of those conditions for which little can be expected.

Too frequently sufferers from almost helpless states fail to get the attention they deserve. A fuller investigation of methods, exploited hopefully, but found disappointing, may result in important practical modifications which shall afford sooner or later marked lessening of the degree or length of those distressing states. To be sure there is, in many instances, only the prolongation of a conspicuously foredoomed life, but the meager item of hope will occasionally blossom into unexpected possibilities, and the finality may even be a recovery, which is assuredly the highest joy to the consciousness of the physician, even though the succored one become little more than a surviving wreck.

It is with this thought in mind, then, that I present the curtailed notes on the cases of four children suffering from certain forms of meningitis, in whom the symptoms due to intracranial pressure and the attendant distressing phenomena were definitely relieved.

The importance and difficulty of obtaining relief from increased intracranial tension has long been recognized, and various devices have been suggested by which this might be most completely and safely secured. T. Clage Shawe in 1889 suggested trephining for the relief of the brain pressure, which was done with fair effect later by Harrison Cripps. This measure was welcomed by Battey Tuke, who suggested laminectomy. Then a number of others suggested divers methods and operations to secure relief from hydrocephalic tension, including the bold plan of W. W. Keen to tap the lateral ventricles, which I myself saw him originally demonstrate and subsequently and successfully perform. None of these plans afforded such safety along with practical utility as Quincke's operation (1891) of puncturing the spinal canal at about the second, third, or fourth lumbar vertebra for the relief of hydrocephalus. Von Ziemmsen (1893) approved of this plan and suggested its use in tubercular and purulent meningitis, and Lichtheim (1893) called further attention to the diagnostic importance of the operation as furnishing evidence of the presence of infective bacterial or other toxic quality in the fluid thus removed. Furbinger experimented largely in the field, reporting a total of eighty-six punctures in his first paper. Wentworth brought down upon himself the sharp criticism of a number of surgeons and others, including myself, by his report of a number of punctures upon healthy infants. He demonstrated, however, most conclusively, that with due precaution there was no danger attending this procedure, and my experience leads me to agree with his conclusions.

A number of observers have recorded their experiences with this operation, some of whom (Freyhein, Furbinger, and others) testify to its value as both a diagnostic and therapeutic measure.

Monti, in a series of twenty-one cases, asserts that in tuberculous meningitis it offers nothing for diagnosis or relief. In acute

cerebrospinal meningitis, reliable indications were afforded and frequent repetitions of puncture exercised a favorable influence upon certain cases when done in the earlier stages. Stadelman, in conclusions drawn from a number of cases of various forms of meningitis, regards the measure as without diagnostic or therapeutic value.

In the cases presented here little was learned from the examination of the fluid, no tubercle bacilli were found, and in some no cultures were made to demonstrate other bacteria. In all there was a certain proportion of relief obtained, enough to justify the expectation that under more favorable conditions and fuller studies improved conclusions might be reached; certainly enough of advantage was obtained to warrant a further employment of this safe measure.

Three of my cases were of immediate gravity, and one was seen late, two of them only after chronic conditions had become established. It would seem reasonable to expect that in conditions of acute cerebrospinal overtension from various causes, with delirium, headaches, uncontrollable vomiting, spasms, and other evidences of cortical irritation, a withdrawal of fluid might materially relieve and aid other rational measures.

CASE I.—Chronic leptomeningitis; purulent otitis media. A boy of two and a half years was brought to my clinic at the Children's Hospital in November, 1896, who had been treated in the wards for some weeks previously. The records there gave the diagnosis as cerebral palsy, etc. Eyesight poor since birth; exophthalmus, hypertension of globe, inability to close the eye completely, nystagmus, no fundus lesion, ptosis (A. G. Thomson). Athetosis of right hand; restless, frequent movements. No cardiac lesion. Unimproved.

The symptoms pointed to an asymmetrical diplegia and were difficult to define, the child being deaf and blind, and, except for the good care recently received in hospital, showed evidences of much neglect. My colleague, Dr. Chas. W. Burr, saw the case with me, and expressed a guarded opinion.

The history elicited was mostly negative and contradictory. The parents were large, vigorous folk, much given to drink; the father was described by the mother as a powerful, violent man, habitually intoxicated. This was the eighth child; others all robust. Three had died of membranous croup. This boy was not so strong as the others, but fairly well; always rather dull, but he could walk and speak a few words before his illness.

Our examination of the boy in hospital showed a fairly well grown and nourished child, with wide-open, staring, gray-blue eyes; partial ptosis, slight lateral nystagmus, increased on being disturbed; mouth constantly kept open, sordes on lips, fairly clean tongue; normal abdomen; skin dry and flaccid. In the region of coccyx there was seen a depression which appeared to be the result of an abortive spina bifida. The spine was straight; no tenderness; the feet had a tendency to equino-varus. The head was retracted; the left ear discharged offensive pus; the child uttered an occasional hoarse, high-pitched cry or whine. For the past six weeks there had been a frequent rolling of the head from side to side; eight weeks ago one convulsion occurred, since which the child has been in the present state of helplessness and apathy. The head was of fair size and shape. Diameters: glabella to inion, 16 centimeters; occipitomental, 18 centimeters; biparietal, 12¾ centimeters; occipito-frontal, 15 centimeters; frontomental, 14 centimeters; circumference, 45 centimeters.

The mother declares there was never any anterior fontanel; all are now closed. No craniotabes; there was a possible tenderness on deep pressure posteriorly. More or less constant athetoid movement persisted, except when asleep or long undisturbed, especially of the right arm and hand, evidenced also by the other limbs at times. The superficial reflexes were inactive, the deep ones somewhat increased on reenforcement; a slight ankle clonus easily exhausted; sensation normal or increased. There was a loose cough and a temperature varying from 98° to 100° F., lower in the afternoon. Percussion of chest normal, except at left apex. Auscultation negative. Heart normal; splenic dulness increased; liver dulness normal; glands not enlarged, except a few of the cervical glands slightly. Digestion fairly good; swallowed slowly; bowels loose; mucus and feces passed involuntarily. Abdomen normal; urine passed involuntarily, negative chemically.

Ophthalmoscopic examination (Hansell): Pupils dilated, reacting doubtfully to light. Right eye: no swelling, no atrophy of optic disk; no choroid blotch. No optic neuritis of either eye. Left eye: no swelling, no hemorrhages; coloboma of the nerve sheath, extending as far as can be discovered—not in both eyes; ground honeycombed.

Various lines of treatment were tried

with little result, including thyroid feeding. Finally it was determined to use lumbar puncture, and Dr. Max J. Stern, on February 11, drew off about thirty-five cubic centimeters of fairly clear cerebrospinal fluid. No pain was evidenced under operation, the child falling asleep almost at once. After this there was a certain amelioration of symptoms, notably of the restlessness. The athetoid movements almost ceased, except to return slightly when unusually disturbed.

On March 16 a second puncture was made, drawing off forty-one cubic centimeters, which was again reported to be bacteriologically negative. There was now, and for so long as the child remained in the hospital (three weeks), a marked improvement. The restlessness ceased, the color improved, and in consultation with several of my colleagues we felt assured the child could both see and hear a little. However, the destructive changes in the centers had been too long-continued for actual repair, and all any one could possibly expect was such relief of the pressure phenomena as was actually obtained.

It is reasonable to infer that earlier interference would have resulted more favorably.

CASE II.—Acute hydrocephalus, "meningitis serosa" (Quincke). Rapid aggravation of symptoms, till death seemed imminent. Lumbar puncture; instant cessation of distress. Recovery from all acute symptoms.

I was called in consultation with Dr. Edwin Rosenthal January 2, 1898, to see a baby eight months old who was in constantly recurring convulsions, which were repeated with increasing force and length, especially on attempts to nurse at the breast. The parents were young and entirely healthy looking, living in comfortable surroundings. This was the fourth child; the others perfectly well. This baby was fed upon the breast, the supply of milk being ample and of good quality. A month before the baby had some febrile attack followed by several days of incessant vomiting. Dr. Rosenthal was called in only a day before, and he summoned me at once. The recurring convulsions steadily growing more severe, the bulging fontanels, the fixed, staring eyes, with irregularly dilated pupils, which failed to react to light, strongly retracted head, the prolonged unconsciousness and continued clonic spasms in the left side of the body between the larger convulsions, all formed a grave and menacing picture.

I found that the superficial reflexes were absent and the deeper ones only moderately obtainable, though they fluctuated and at times were in excess. The face was almost constantly cyanosed, the pulse feebly irregular and very quick; the heart sounds much confused, but apparently free from adventitious sounds. I advised the operation of lumbar puncture without delay, and had the child removed to the Polyclinic Hospital, where the mother remained with it. Dr. S. K. Morton met me at once and operated, withdrawing thirty cubic centimeters of cerebrospinal fluid. The child gave no evidence of discomfort (ethyl chloride was used locally); indeed, there was the most marked relief at once evidenced upon the child's face, as well as throughout the whole body. The spasmodic motion ceased as soon as the flow became established, and the child slept soon and passed a most comfortable night.

A few hours afterward examination showed a marked lessening of the tension in the fontanels (the measurements of the case have been lost); the pupils responded to light and seemed almost normal; the pulse became steady; and the spasmodic movements decreased. This child is now under observation for over a year, and is very well except for a slight condition of hydrocephalic deformity.

CASE III.—This case was reported at length by Dr. Edwin Rosenthal (who had me in consultation) in *Pediatrics* of November 1, 1897, and I shall only briefly recapitulate the main facts: Boy of ten months. The family history was filled with evidences of constitutional nervous instability. This was the third child, others having died of "convulsions," etc., and was breast fed only. Three months previously there had been some form of acute febrile disorder, at which time the head began to enlarge. Two weeks before we saw the babe a series of acute phenomena supervened, which culminated in the present serious state of acute hydrocephalus. The constant local spasms were for some time on one side only, and then changed to the other, finally alternating back and forth; they were of varying force, from twitchings to severe convulsions of both sides when at their worst, and only rarely absent while asleep. Sensation present, though at times impaired. The eyes remained unchanged in their axes, except during large convulsions, when the pupils converged and were equally contracted, but at times were dilated. A competent medical student remained in charge for several days, who kept record of the states. There was no vision that we could demonstrate. The

head was enlarged in a curious globular fashion, the temporal region overhanging the ears. The measurements, which are recorded, were frequently repeated. I became skeptical as to the variations after lumbar puncture, though I believe they are in the main correct. This variation was enormous, and the relief by tapping very marked. Temperature, mouth and rectum, normal. Respiration of the Cheyne-Stokes variety. The knee-jerks could scarcely be elicited at this time, but after tapping became normal. The superficial reflexes were impaired.

Dr. Stern did lumbar puncture between the third and fourth lumbar vertebræ, and eighty cubic centimeters of fluid was withdrawn, the flow being allowed to cease spontaneously. No tubercle bacilli were found (Dr. Abbott, of city laboratory). The child became comfortable and quiet as soon as the fluid began to flow, and slept well for several hours; the color and respiration became normal, the pupils resumed their reaction to light, and the pulse fell from 180 to 145. The following day the symptoms became severe again; the knee-jerks were normal, however. Pressure on the fontanels caused convulsions; the head measurements were increased, but not so great as at first. The child had taken nourishment fairly well and retained it, and the bowels responded normally to calomel. The urine passed in the interval was of a curious olive-green color and showed traces of albumen, some sugar, but no casts. These soon disappeared. Respiration became Cheyne-Stokes again at times. On the third day the head measurements were again increased. Symptoms of exhaustion supervened, and the child died three days later. We feel confident that earlier interference would have resulted more favorably.

CASE IV.—Probably simple posterior basic meningitis. Boy of seven months, of healthy parents, good ancestry, and breast fed, developed symptoms of meningitis with convergent strabismus, general convulsions, retracted head, etc. I took the babe and mother into the Polyclinic Hospital in November, 1898, and performed lumbar puncture, drawing off only about ten cubic centimeters of fluid. In this we found no bacilli. Pressure symptoms were at once relieved, and the child slept well and took the breast comfortably. The case was kept in the hospital for ten days and is still under observation (four months now), and seems to be perfectly well.

Certain conclusions seem plain to me in view of these facts. When there are marked symptoms of intracranial tension imperiling life in many directions, not the least of which is the interference with sleep and the nutritive processes, lumbar puncture seems a useful and safe procedure. It is an operation which any competent medical practitioner can perform, the dangers being few, and almost no evidence is adduced to show that damage has resulted.

Distinct relief can be expected to follow in many instances, though the testimony of observers varies. Many series, too numerous to quote, have been recently recorded, but the conclusions are practically those of Fleischman (*Deutsche Zeitsch. f. Nervenheilk.*, 10, 1897).

MORPHINE IN UREMIA.

BY J. W. MEEK, M.D.,
Camden, Arkansas.

In the *Journal of the American Medical Association* of July 23, 1898, I read with interest an article by Professor Tyson on the use of iron and opium in chronic Bright's disease, and in the November and January numbers of the THERAPEUTIC GAZETTE the editor apparently gives an unqualified indorsement to his conclusions. I need hardly mention that these conclusions are in the main against the use of opium and its preparations to control the nervous phenomena that constitute so distressing a feature of chronic interstitial nephritis. Both articles invoke the name of the late Professor Loomis to strengthen this position, yet I must insist that both fail to quote Loomis aright. In the United States Professor Loomis is universally credited with having first used morphine hypodermically to control uremic convulsions, but these articles insist that he only recommends it in the convulsions of *acute nephritis*.

Now I ask every one who feels an interest in this subject to read carefully Loomis' work, edition of 1889, from page 577 to page 616 inclusive, and then "let us reason together" and see if his written words will sustain the interpretation given by such distinguished authorities as Professors Tyson and Hare. In the November number of the THERAPEUTIC GAZETTE it is stated that "Professor Loomis' position has been much misrepresented," and in the January number, on page 22, it is stated that Loomis was "careful to limit its use (morphine) to the uremia of acute nephritis, and did not commend its employment in the

uremia of chronic nephritis." Further, it is stated "this fact is not generally known." Against this I will quote Loomis, on page 616, Treatment of Chronic Interstitial Nephritis, where he uses the following words: "For symptoms or complications that demand a narcotic or anodyne, *opium* is to be used in preference to all others." Now certainly all will admit that convulsions is a condition that demands an "anodyne or narcotic," and no doubt he meant convulsions in the expression "symptoms or complications."

A careful reading of Loomis' work will show that he treats of uremia in a chapter preceding his treatise on the various forms of nephritis, and in writing of the occurrence of uremic symptoms in the various forms of renal disease he refers back to the chapter on uremia for the treatment of the same. In the treatment of all the forms of renal disease he never mentions opium nor its preparations, not even in acute nephritis, except to recommend it in *chronic* disease, on page 616, as I have already quoted. Some readers have been misled by the expression "acute uremia," which he says on page 577 "may occur in *chronic* as well as acute renal disease." He never says "uremia" occurring in acute renal disease—it is always "acute uremia," by which he evidently means a *sudden* development of same.

I know neither Professor Tyson nor Professor Hare would intentionally misrepresent Professor Loomis, and I ask them both to read his article on the lines suggested.

Again, Loomis in a little work entitled "Treatment of Bright's Disease," issued by Geo. S. Davis, says, on page 15: "Since uremic phenomena are not specifically associated with any one, but may occur in connection with all forms of Bright's disease, they may properly be described *once for all.*" Again, on page 101, in the treatment of cirrhotic kidney, he says: "*Acute uremia* occurring in cases of cirrhosis will call for the treatment already described." And I need hardly add that treatment places opium in the front rank.

It would be presumption in me to set up my opinions against those of Professor Tyson and Professor Hare, but I must state that morphine subcutaneously has in my hands, cautiously given, been a nepenthe, as Poe would call it, to some of my incurable patients. The uremic asthma that, like Macbeth, "murders sleep" has almost invariably been relieved by a hypodermic of one-fourth grain of morphine and one one-hundred-and-fiftieth grain of atropine, and what would have been a hideous night for patient and friends has been made one of rest and refreshment by the above remedy. No one will deny that it has its limitations, and all who recommend it should urge caution in the beginning until the patient's tolerance is tested.

Truly "experience does not teach all alike," as we find such able observers as Hare and Tyson on the one side, and Osler and Ringer arrayed against them on the opposite side, on this subject.

I will add a quotation from Hare's "Practical Therapeutics," page 292, edition 1897: "Opium acts as a preventive of tissue waste, *increasing the elimination of urea* and other results of *nitrogenous* breakdown." I have the highest respect for the above named authority, and if opium increases the "elimination of urea" it can scarcely fail to be beneficial in uremic toxemia.

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To this article Professor Tyson has kindly made the following reply:

To the Editor of the THERAPEUTIC GAZETTE.

I thank you for the opportunity to read Dr. Meek's communication on the use of opium in chronic interstitial nephritis, in which he refers to my own paper on "The Use of Iron and Opium in Bright's Disease," read before the Section on Practice of Medicine of the American Medical Association at Denver in 1898, as well as to your papers in the THERAPEUTIC GAZETTE. The statements in my paper are based on my own experience and continue to be confirmed by my observation, though I am glad to realize that opium is being more and more cautiously used, particularly in the interstitial variety of chronic nephritis, and therefore that accidents are more infrequent. My reference to the late Dr. Loomis was not based on a study of what he *wrote* on the subject, because I never read what he himself *wrote*, but was based on what he *said* to me personally the last time I saw him, in the summer of 1893, when he presided over the meeting of the Association of American Physicians in Washington.

As to acute and chronic uremia I see no essential difference between them; indeed, I am rather skeptical as to the existence of a chronic uremia as something separate from an acute uremia. They are both due to the same cause, the retention of a *toxic something* in the blood which it is the office of the kidneys to remove. In one case the accumulation may take place rapidly, and in another

more slowly. In one the symptoms may arise suddenly, in the other develop gradually. Now in acute nephritis, in which the employment of opium is admissible, the secreting cells of the kidney are still abundantly present, and though damaged are more or less capable of maintaining their function, while in interstitial nephritis they are mostly gone, destroyed in the contracting process or represented by a remnant of cells of feeble function. Under these circumstances, elimination is maintained through the compensatory hypertrophy of the heart, which by pumping more blood through the kidneys causes a more copious filtration of urine feebly charged with urea, which makes up by its increased quantity for the lowered proportion of urea. Now if we dry up this secretion, as we are sure to do if we administer opium, we retain the toxic matter and invite uremia.

These views I have always thought quite compatible with the physiological effect of opium, viz., that it *diminishes* the elimination of urea. Has not Dr. Meek supported his position by a typographical error, when he quotes your "Practical Therapeuties," page 292, edition of 1897: "Opium acts as a preventive of tissue waste, increasing the elimination of urea, etc." Should it not read *diminishing* for *increasing?*

JAMES TYSON.

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My views are identical with those of Dr. Tyson as stated above. The quotation from the edition of 1897 of my book on Therapeutics is contradictory of itself, and is due to a misprint, which has been corrected in later editions, where it reads "decreasing" for "increasing." A drug which decreases tissue waste usually decreases the escape of urea, and in the case of opium this decrease is probably due to this cause and to decreased renal activity under the effect of the drug.

H. A. HARE.

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*ORGANOTHERAPY IN GYNECOLOGY.**

BY W. A. NEWMAN DORLAND, A.M., M.D.,
Instructor in Gynecology, Philadelphia Polyclinic; Assistant Obstetrician to the Hospital of the University of Pennsylvania, etc.

The internal administration of organic extracts for the relief of various morbid conditions, while generally regarded to-day as an innovation in therapeusis, is in reality of very ancient origin. It is a well known truth, as attested by no less an authority than Pliny, the historian, that the Grecian and Roman *roués* were accustomed to consume the testicles of asses to restore their dissipated manhood; and from time immemorial the drinking of blood has been supposed to restore lost vitality and to act as a tonic of the greatest efficiency. It remained, however, for the eminent Brown-Séquard and his school of followers to initiate as recently as 1889 the new era of organotherapeusis, and to formulate the theory of the medicinal value of glandular extracts.

While the results obtained from the administration of the testicular juice have not realized the fond anticipations of its enthusiastic advocates as a therapeutic remedy of marvelous capabilities, it must be acknowledged that the impetus imparted by it to the scientific medical world has developed in a line of active investigation and clinical experimentation that has resulted in much of undoubted value to suffering humanity. As one concerned especially in the allied studies of obstetrics and gynecology, there is much of the new organotherapy that, save from a general scientific point of view, creates but a passing interest. It is to a special study of the action of the extracts of the ovary and thyroid and mammary glands that I would invite your attention briefly in this paper.

As we all know, these organic preparations have been employed more or less extensively during the past few years in the treatment of various conditions, especially for the correction of the menopausal symptoms, whether induced or physiologic, and with a varying degree of success. It is not in this class of cases alone, however, that their value has been demonstrated.. Various nervous conditions, such as neurasthenia, sexual atony, and certain forms of hysteria, have been materially improved after their administration. In addition, grave systemic disorders, as profound anemia, chlorosis or chloroanemia associated with dysmenorrhea, osteomalacia, myxedema, and exophthalmic goitre, have in many instances and with divers investigators been greatly benefited, while fibroid tumors of the uterus have melted away, and inoperable carcinomata of the breast, uterus, and vagina have been arrested in their process of development or even actually cured, if we accept the statements of the reporters, as there is every reason to believe that we should.

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* Read before the Barton Cooke Hirst Obstetrical Society of the University of Pennsylvania, Feb. 15, 1899; and before the J. Aitken Meigs Medical Association of Philadelphia, Feb. 23, 1899.

Then, in addition, the knowledge derived from the systematic use of these glandular extracts has wrought a marvelous change in the techniques of the various abdominal operations; for where formerly it was taught that the last vestiges of the tubes and ovaries should be removed in every abdominal section, and one of the objections advanced against the performance of the vaginal hysterectomy was the frequent inability to extract the appendages together with the uterus, to-day it is the aim of every advanced abdominal surgeon to leave at least a portion of the ovary or tube *in situ*, if not the organs in their entirety, in order to avoid the deplorable sequences of total castration. Conservation of the ovary in hysterectomy and hysteromyomectomy is now the *ne plus ultra* in the performance of these grave operations.

Ovarian Therapy.—G. E. Curatulo and L. Tarulli,* who have made a careful study of the ovarian functions, believe that these organs have a special internal secretion, whereby they are constantly discharging into the fluids of the body a peculiar substance of unknown chemical composition, but which possesses the peculiar property of favoring the oxidation of carbohydrates and fatty and phosphorized organic substances. When this substance is removed, either by disease or extirpation of the ovaries, or as a natural sequence of the postclimacteric atrophy of these organs, there results the well known series of phenomena characteristic of the "change of life." If at the time of an abdominal section but a small portion of ovarian tissue be left in the pelvic cavity, the artificial menopause does not occur, and the woman is saved incalculable suffering. The axiom of Christopher Martin† that "physiologically there is no difference between a woman with half an ovary and a woman with two ovaries, while there is a great difference between one with half an ovary and one with none," should, in the light of this statement, be classed among the imperishable quotations in medicine.

The Italian observers already mentioned further found that in bitches after the removal of the ovaries there occurred a marked and permanent reduction in the quantity of phosphates eliminated in the urine. Here at once may be detected the *rationale* of the treatment of osteomalacia by castration, in that there is immediately produced a stoppage of the drain upon the systemic phosphates, which instead will be stored up in the already sadly depleted osseous tissue.

As already stated, an interesting fact worthy of note is that it is not necessary for all of the ovarian tissue to be retained in order that the menopausal symptoms be not induced. It has been demonstrated by Airstoff, as quoted by Routh,* that when one ovary is removed from a rabbit there is at once induced in the remaining ovary a remarkable and rapid hypertrophy whereby the function of the lost organ can be assumed by its fellow. While such a change has not been clinically demonstrated in the woman, it is not at all improbable that functionally the retained ovary in unilateral castration assumes the duties of both. At any rate, we have sufficient clinical data to prove that a mere fragment of retained ovarian tissue is amply sufficient to preserve the full effects of its secretion upon the body functions.

One other step is necessary to complete the chain of argument in favor of ovarian organotherapy, and, fortunately, this has been supplied through the interesting experiments of E. Knauer.† He has demonstrated that the mere presence of the ovarian tissue in the body at some point, and not necessarily in its original situation, will suffice to exert its dominant action over the system. Again experimenting upon the long-suffering rabbit, he has been able to transplant an ovary, completely detached from its original position, to some remote part of the body, as the distal portion of the broad ligament and in the body of the muscles of the abdominal wall, where it has retained its functions and effectively exerted its influence upon the body.

With the two facts thus clearly demonstrated, namely, that the presence in the body of ovarian tissue, however small the quantity, is necessary to preserve the normal secretions of the body whereby distressing phenomena may be prevented, and secondly, that it matters not where this portion of tissue be retained, whether in its normal situation or elsewhere, it is but a simple matter to formulate the corollary that the administration of ovarian tissue or its essence should exert a beneficial effect in those patients in whom this function is absent either as a result of the normal menopause or secondary to disease or total castration.

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* La Secrezione Interna delle Ovarie, Rome, 1896.
†*British Medical Journal*, Sept. 17, 1898.

British Gynecological Journal, May, 1894, p. 59.
†*Cent. f. Gynäk.*, No. 20, May 16, 1896.

It is not my intention to enter deeply into an examination of the literature of this subject, but a hasty summary of the clinical reports will be of interest and value in arriving at the results thus far obtained. Werth, of Kiel, claims priority in the employment of ovarian organotherapy to correct the menopausal symptoms, whether induced or natural; his results were most favorable. Federoff* found that in rabbits ovarin and fresh ovarian extract raised the blood-pressure, but diminished the heart's action and slowed the respiration. In the human female the pressure in the radial artery was notably increased after the administration of ovarin. Poehl's ovarin had, in his hands, a marked beneficial effect in the disturbances attending the climacteric, as well as in functional derangements of the ovaries.

Bodon† reports three cases in which he employed Merck's ovarin tablets. The first was a multipara, twenty-five years of age, who presented the symptoms of the induced menopause, a double ovariotomy having been performed six months before. Improvement began on the second day, and in two weeks she was entirely cured. The second case was that of a nullipara, forty-seven years old, whose menopause had occurred two months before. Four tablets of ovarin daily soon cured her. The third case was that of a virgin, eighteen years of age, suffering with menstrual epilepsy, in whom the bromides and other drugs had proved utterly futile. She began with one tablet of ovarin daily and increased the number to ten. In the course of several months the epileptic attacks ceased.

Jacobs‡ prefers a preparation in wine, the daily dosage being five drachms, containing three grains of ovarian extract. His results were as follows: Climacteric disturbances, including vesical irritation, were either relieved or ceased entirely, whether physiologic or following castration. The results were most prompt in patients suffering from chlorosis and dysmenorrhea. The influence of the extract upon reflex psychic disturbances attending pelvic affections was marked. In all cases a rapid and permanent improvement in the patient's general condition was noted, digestive troubles disappearing, and the appetite being improved. Climacteric hemorrhages resulting from neoplasms quickly ceased, while the therapeutic action of the remedy upon the general nervous system was easily observed.

R. Chrobak* administered ovarian extract made from the fresh ovaries of cows to a number of castrated women suffering with the symptoms of the induced climacteric. In one case, after taking two or three tablets daily, the attacks of giddiness, flushes, and sweatings, which the patient had experienced ten or more times in the day, were reduced to three, and disappeared entirely at night. Another patient was entirely relieved of attacks which had been occurring as often as five or six times daily.

Kleinwächter† employed ovarian extract in three cases of neurasthenia associated with dysmenorrhea. One patient was relieved of her symptoms, but in the other two no improvement took place, and the remedy had to be discontinued on account of the increase of the nervous symptoms produced thereby.

B. Sherwood Dunn,‡ in a paper read before the American Association of Obstetricians and Gynecologists, on August 20, 1897, stated that any skepticism which he may have entertained regarding the theory of ovarian secretion and its usefulness and necessity to equipoise of the entire system had been entirely dissipated by the results of experiments made with ovarian substance, or ovarin, in patients who had lost both ovaries, or who were suffering from troubles which in a greater or less degree were due to a diseased condition of the ovaries. He had obtained excellent results from the daily administration of two grains of ovarin in capsules. M. D. Mann, in the discussion of this paper, said that he had used the ovarin in a few cases of amenorrhea in young women. In one case the hemoglobin was actually increased, but it was too early as yet to arrive at definite conclusions. A. Goldspohn stated that he had treated a case of induced menopause following a total hysterectomy with five grains of ovarin administered three times daily. In one week's time the patient was almost completely relieved, although it was necessary to increase the size of the dose.

Mond§ reports a number of cases of reflex nervous disturbances following the natural and artificial menopause, in which ovarian tissue was administered with benefit. Ten

* *Wratch*, No. 26, 1897; *La Gynecology*, Oct. 15, 1897.
† *Orvosi Hetilap*, 1896, No. 42; *Cent. f. Gynäk.*, Aug. 7, 1897.
‡ *La Polyclinique*, No. 23, 1896.

* *Cent. f. Gynäk.*, No. 20, May 16, 1896.
† *Zeits. f. Geb. u. Gynäk.*, 1898, Bd. 37, H. 3.
‡ *Clinical Reporter*, September, 1897.
§ *Münch. Med. Woch.*, 1896, No. 36.

tablets (each containing a grain and a half of dried ovarian tissue) were given daily. By the second or third day it was noted that the attacks of flushing, perspiration, and mental depression were less marked. After ten or twelve days, or when about one hundred tablets (corresponding to one hundred and eighty grains of ovarian tissue) had been administered, the nervous disturbances were reduced to the minimum. Patients at the normal climacteric responded most promptly to treatment, their symptoms being decidedly relieved as early as the sixth day. Mond admits that a permanent cure cannot be expected in case the reflex phenomena are dependent upon atrophy or removal of the ovaries, but their severity may be mitigated and the period of disturbance shortened. Large doses should be given for the first two weeks, and then smaller doses continued for a considerable period, to be increased if the climacteric troubles reappear. He emphasizes the importance of preserving a portion of ovarian tissue whenever this is possible in operations upon the adnexa, in order to preserve the function of menstruation. This applies, however, to cases in which the uterus is preserved, since Glaevecke observed, in fourteen cases in which the tubes and ovaries were spared when the uterus was removed, the same disturbances as after castration. The ovaries in these cases usually become atrophied in consequence of their diminished vascular supply.

Mainzer* has reported cases of profound nervous disturbance and hysteric manifestations in the climacteric after double ovariotomy which were successfully treated with fresh ovarian substance. The symptoms, including the disturbance in the vasomotor apparatus, were completely removed or very favorably influenced. The remedy, he claims, is of good service in primary and secondary amenorrhea. He states that it is advisable at the beginning of the treatment to give small doses at long intervals, and from time to time to increase the dose and shorten the interval as the cure continues.

Jacobs† found that by the use of ovarian extract the disagreeable symptoms of the natural or artificial menopause are relieved or disappear. He reported forty cases so treated with excellent success. Rapid improvement was constant in cases of chlorosis and dysmenorrhea. The extract undeniably influences the psychic troubles accompanying genital lesions. It rapidly overcomes the metrorrhagias of the menopause not connected with neoplasms. It causes a rapid and constant improvement in the patient's general condition, and its therapeutic action upon the nervous system is manifest from the first day. The results of the treatment are usually apparent on the second or third day. Similar results have been obtained by Jayle, as reported by Lissac,* while Stouffe, of Nevelles, and Touvenaint† have treated several cases of chloroanemia associated with amenorrhea by means of the extract, in all of which the anemic symptoms disappeared and the menstruation returned.

Spillman and Etienne‡ administered to six chlorotic females the fresh ovaries of sheep, dried ovarian tissue, and fluid prepared according to Brown-Séquard's method. Unpleasant symptoms were noted at first, such as abdominal pains, headache, and muscular soreness, with sometimes a slight rise of temperature. In three cases the patients were much improved, the paleness disappeared, the number of red corpuscles increased, and menstruation reappeared. The remedy seemed to act like an antitoxin.

E. Saalfeld,‖ in view of the observations of L. Landau on the oophorin treatment of nervous symptoms occurring in women about the climacteric period, gave oophorin preparations to women suffering from acne rosacea and other cutaneous disorders at the menopause. The results were satisfactory. In a woman aged about twenty double oophorectomy was followed by nervous symptoms, adiposity, and a lichen-like eczema over most of the body. Great improvement followed the use of oophorin, both in regard to the skin eruption and the other symptoms, and the weight was also somewhat reduced. Saalfeld likewise treated cases of acne, and of seborrhea of the scalp with loss of hair, which often occurs in chlorotic women. He obtained good results in these cases, in certain of them better than the results obtained by chalybeate and local treatment. On the whole, though the results were not as good as those obtained in climacteric troubles, he thinks oophorin may be used with advantage in such cases as an aid to external treatment.

Stimulated by these reports of more than ordinary success in the management of one

* *Cent. f. Gynäk.*, March, 1896.
† *Dublin Journal of Medical Science*, Sept. 1, 1897.

* *Gaz. Hebd. de Méd. et de Chir.*, Nov. 15, 1896.
† *Jour. de Méd. de Paris*, Oct. 25, 1896.
‡ *Gaz. Méd. de Paris*, 1896, No. 35.
‖ *Berl. Klin. Woch.*, 1898, No. 13.

of the most trying conditions that woman is heir to, I have during the past four months been using organotherapy in its various forms in suitable cases. The ovarian extract has been employed in two cases, as follows:

The first, Mrs. S., a widow thirty-eight years of age, upon whom five years ago I performed a double ovariotomy for cirrhotic changes, was for the last three years an intense sufferer from the climacteric symptoms, with especial prominence of the nervous manifestations, and more or less constant neuralgic attacks of great severity in the hands and feet. The patient stated that at the expiration of seven days of the ovarian treatment—three tablets of five grains each being administered daily—the inflammation (meaning the neuralgia) was so diminished in the knees, ankles, and feet that she was able to wear shoes that she had not worn for three years. The rheumatic pain in the shoulders had disappeared, and she was better than at any time during the three years.

The second patient, Mrs. S., twenty-five years old, developed a double pyosalpinx, probably of specific origin. I removed both appendages seventeen months ago. Six months after the operation the climacteric symptoms developed, and were but slightly benefited by the administration of the usual remedies, including the bromides and ammonium chloride. She was then placed on the ovarian extract, five-grain tablets three times daily, and in two days was relieved of most of her symptoms. At the end of a week, however, the unpleasant symptoms arising from an overdose of the extract developed, and the remedy had to be temporarily discontinued. The menopausal symptoms shortly returned, but with diminished severity, and the administration of the extract was renewed in two-grain doses three times per diem with marked benefit.

From this limited personal experience it would be premature to arrive at any definite conclusion as to the usefulness of the remedy in question. If, however, it be taken in connection with the foregoing results obtained by investigators in various portions of the world, we are safe in formulating the following statements:

1. The ovaries, in common with other glandular organs in the body, exert an occult, but very positive, influence upon the general organism.

2. When this influence is removed, either by the natural atrophy of the glands at the climacteric, by destruction of the ovarian stroma from pathologic processes, or by extirpation of the organs, there results a series of distressing phenomena, including hot and cold spells, nervous and mental manifestations, and neuralgic attacks.

3. The administration of ovarian substance or of the extract of ovarian tissue is promptly and very generally followed by a marked amelioration of these symptoms.

4. The average dose required varies from two to five grains of the extract administered thrice daily.

5. Excessive doses of the remedy will be followed by cardiac and nervous manifestations necessitating a diminution in the dose administered or a complete, though temporary, change of treatment.

6. In some cases there appears to be developed a tolerance to the remedy whereby its effects are diminished in intensity. For this reason it is better to begin with small doses and gradually increase the amount as may be indicated in the given case.

TUBERCULOUS PERITONITIS.

By Anna M. Fullerton, M.D.

Cases of tuberculous peritonitis offer an interesting subject for study to the gynecologist, being frequently associated with disease of the pelvic organs of markedly tuberculous character, which has, doubtless, served as the starting-point for the invasion of the peritoneum by the tubercle bacillus.

Strangely enough, even when this local disease is of most aggravated character there may be no manifestation of involvement of other organs of the body outside of the abdominal and pelvic cavities.

The mode of invasion in any given case is often a difficult point to determine. In many cases there is unquestionable evidence that the disease has reached the peritoneum by the vagina, uterus, and Fallopian tubes, as tuberculous lesions are found in all these organs. In other cases the appendages alone appear to be affected, the uterus remaining free. It has been suggested that in those cases in which the invasion appears to have come from within rather than from without the dissemination of the disease has resulted from broken-down mesenteric glands.

In a case of my own very marked enlargement of the mesenteric glands was appreciated when the abdomen was opened for the removal of diseased appendages, the uterus being apparently healthy.

A family history predisposing to the occurrence of tuberculous disease in a patient is not always to be obtained. Nor do we always find a depression of the general health.

Dr. Howard Kelly thinks that pregnancy shows a definite causal relationship to tuberculous peritonitis, and states that in twenty-eight per cent of his cases his patients dated their ailment from a miscarriage or a labor.

The following brief clinical reports of some cases of this kind occurring in my own practice within the past year and a half may be of interest by way of confirmation of the observations so far made concerning this rather obscure malady:

CASE I.—A widow, aged thirty-one, an American, with bilateral suppurative disease and extensive pelvic adhesions. The operation for bilateral salpingo-oophorectomy was done for her. The pus found in the uterine tubes was demonstrated to contain tubercle bacilli. The patient did not have the appearance of a tuberculous case. She was in good flesh and her color was good. Her mother had died of consumption, and a sister had a sore on her arm, the result of caries of the bones of the arm of long standing. She had been married eleven years and had never been pregnant. Irregularity of the menses, vesical tenesmus, and severe pain in the inguinal regions were the chief symptoms complained of.

CASE II.—A young American woman, still in her twenties, was found on abdominal section to be suffering with disseminated miliary tubercle of the entire visceral and parietal peritoneum. The operation was undertaken for the removal of a suppurating ovarian cyst. The pus from this tumor was proved by inoculation experiments to contain tubercle bacilli. Removal of the cystoma with bilateral removal of the appendages was accomplished. As the separation of adhesions had been very extensive it was thought best to use drainage. The patient was septic when operated upon and intensely weak and emaciated. She made a brave struggle for life, however, and recovered with a small fistula at the site of the drainage tube, which later at times discharged fecal matter. I did not expect this patient to live but a few months, as the disease of the peritoneum was so extensive. Almost a year later her husband wrote me that she was greatly improved in health and desired to return to the Woman's Hospital for a secondary operation for closure of the fistula. This I advised against, as I felt it unwise to reopen her abdomen. She went elsewhere for operation and died upon the operating table. No clear history of hereditary taint could be obtained in the patient's immediate family, although the history in her husband's family was quite marked. Her husband was delicate in appearance, but did not think he had any active manifestations of tuberculous trouble. This patient had suffered from one or two abortions, from which her ill health had dated.

CASE III.—A German housewife, aged thirty-nine, had a sister who suffered from Pott's disease. The family history in other respects seemed good. The patient had been twice married and had borne two children, who died young. About three years before presenting herself at the Woman's Hospital she had suffered from a miscarriage at three months. She dated her ill health from that period, but thought it also partly due to the fact that immediately afterward she had to go into a mill to work in order to support herself. Her menses had become irregular. Five months before I saw her she had been to another hospital, to which she had applied for treatment for abdominal distention. Paracentesis abdominis was done, and four and a half quarts of clear serous fluid removed. She came to us seeking treatment for a similar condition. Tuberculous peritonitis was diagnosed and an exploratory abdominal section made. A quantity of free liquid was evacuated. The intestines, peritoneum, and all the pelvic organs were found to be studded with minute miliary tubercles, or, as Dr. Kelly describes the appearance, "peppered with little white seeds." The uterus and appendages were glued to the wall of the pelvis and inseparable from it. There was apparently no collection of pus nor any active inflammatory process in progress. The disease had evidently assumed a chronic phase, the pelvic adhesions and the serous exudate remaining to testify to the more active conditions which had preceded them. After irrigation of the peritoneal cavity the wound was closed and healed by first intention. When I last heard from the patient she was again increasing in size, and doubtless will again need to have the fluid removed.

Repeated evacuation of this ascitic fluid does sometimes, it is reported, lead to cure. Occasionally even after operation the patient develops tuberculosis of the thoracic cavity or a tubercular meningitis to which she succumbs.

A colored woman whom I saw last spring evidently suffering from ascitic distention

due to tuberculous peritonitis refused operation, and died in the early fall of rapid pulmonary phthisis. It would thus appear that operative interference afforded the one chance both of palliation and cure.

CASE IV.—An American, thirty-two years of age, with extreme distention of the abdomen and irregular masses filling the pelvis. She was emaciated to a skeleton and suffered from great weakness, having been confined to her bed for two months or more before I saw her. Examination of the chest gave no evidence of lung involvement. Examination of the abdomen and pelvis under anesthesia showed the presence of free fluid in the abdominal cavity, while resistant masses were found in Douglas's cul-de-sac.

Abdominal section was done, and two and a half gallons of free fluid evacuated from the abdominal cavity. The ovaries and tubes were greatly enlarged and thickly studded with tuberculous nodules. Double salpingo-oophorectomy was done. A glass drainage-tube was introduced into the lower angle of the wound and drained as frequently as every two or three hours until the fifth day after operation. The amount of serous secretion lessening, a rubber drain was introduced and kept in place for four days longer, when it was removed. The patient made a good recovery, the wound healing. She gained flesh, and five weeks after the operation returned to her home in a distant town. Within three months after her return to her home she needed to be tapped twice, the fluid accumulating, and, soon after the last operation was performed, she died of exhaustion, as reported by her physician.

There was no history in this patient's case of hereditary tendency to tuberculosis. Though not robust she considered that she had very fair health. In a married life of seven years she had borne three children. Her youngest child had Pott's disease. Her own health had not been as good since the birth of this child. She suffered mainly, she thought, from indigestion, and complained of cutting pains in the abdomen on a level with the umbilicus. The skin around the umbilicus was very red and edematous. She was never conscious of pelvic distress and menstruated regularly and without pain. For about nine weeks previous to my first seeing her she had noticed a very marked and rapid increase in the size of her abdomen. She lost flesh and strength rapidly and was obliged to take to her bed. The peritoneum was found intensely red and thickened, due to the acute character of the inflammatory process. The primary seat of the disease and probable avenue of invasion was to be found, we thought, in the tubercular tubes and ovaries.

PRESCRIPTIONS FOR ANTACID POWDERS.

The *Revue de Thérapeutique Médico-Chirurgical* of November 15, 1898, contained an article by LYON, in which a number of prescriptions were given for the treatment of excessive acidity of the stomach. Amongst these we find the following:

Bicarbonate of sodium, 6 grains;
Prepared chalk, 2 grains.

To be made into a powder, and one of these given three times a day.

Or,

Bicarbonate of sodium, 15 grains;
Prepared chalk,
Calcined magnesia, of each 2 grains.

Should there be pain in the stomach with the acidity, it is well to prescribe a powder consisting of five parts of magnesia and fifteen parts of the subnitrate of bismuth, which is to be made into ten powders and one of these taken every hour. In other instances it is well to dissolve one of the following powders in a small glass of seltzer water:

Bicarbonate of sodium, 6 grains;
Borax, 2 grains;
Salicylate of sodium, 3 grains.

This mixture is to be taken before breakfast. After breakfast a similar powder may be taken to stop fermentation and relieve flatulency and pain.

Another prescription, which Lyon credits to Einhorn, is:

Calcined magnesium, 2 drachms;
Powdered rhubarb, 2 drachms;
Carbonate of sodium,
Bicarbonate of sodium,
Powdered sugar, of each ½ ounce;
Essence of peppermint, enough to flavor.

A saltspoonful of this powder may be taken two hours after each meal in Vichy water.

Rosenheim prescribes the following powder:

Calcined magnesium, 90 grains;
Bicarbonate of sodium,
Powdered rhubarb, of each 1 drachm;
Extract of belladonna, 2 grains.

A saltspoonful of this may be taken three times a day in half a glass to a glass of water.

Constipation, which is so frequently a complicating symptom of this condition of acidity of the stomach, is to be combated by the use of rectal injections, abdominal massage, and rarely by laxatives. Often the administration of small doses of castor oil from time to time, a little sulphur, magnesia, and cream of tartar, would be sufficient.

The Therapeutic Gazette

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Leading Articles.

DISORDERS OF THE HEART DEPENDING UPON VASCULAR CHANGES.

It is not our intention in this editorial to deal with those secondary lesions which are so frequently found in the heart muscle, associated with more or less grave pathological changes in the walls of the blood-vessels, such for example as those which are so frequently met with in persons suffering from atheroma due to syphilis or old age. It is rather our intention to deal with functional disturbances in the circulation, which are often treated by the administration of drugs acting directly upon the heart, rather than by the use of remedies designed on the one hand to overcome arterial spasm, or on the other to increase vasomotor activity and consequently produce a rise in blood-pressure.

We have long been convinced that a very large proportion of patients presenting functional cardiac disturbances suffer from a disordered vasomotor nerve condition, and that remedies directed to this portion of the circulatory apparatus are the drugs to be sought after. We therefore have read with much interest a report which is published in the *Journal des Praticiens* of December 10, 1898, in which the author deals particularly with palpitation and peripheral vascular constriction in anemic persons, citing a case as illustrative of the theme of his paper. He points out how disorder of the peripheral circulation often results in disturbed cardiac action, and quotes Huchard's well known book upon diseases of the heart in support of his proposition.

In those cases in which anemia is present the cardiac disturbance is best overcome by the use of iron preparations combined with hot and cold douches alternately, to improve the vascular tone. Massage is also to be applied to the extremities, and active frictions are also of great value. It is said that in addition to these external applications the following preparation may be used as a liniment for the purpose of improving the tone of the peripheral blood-vessels:

Spirits of juniper, 4 ounces;
Spirits of lavender, 2 ounces;
Essence of turpentine, 1 ounce;
Menthol and thymol, of each 7 grains.

In those cases in which there seems to be vascular spasm, nitroglycerin in the dose of $\frac{1}{100}$ of a grain three times a day is of value, or in other cases nitrite of potassium may be used. In regard to tetranitrol as originally recommended by Bradbury and Broadbent of England, Huchard states that this substance possesses the advantage of being more lasting in its influence than nitroglycerin. He administers half a grain in each twenty-four hours, giving as a rule about one-tenth of a grain at a dose, usually in alcoholic solution; but we think this dose is too large.

Our own experience has been that in many instances the use of belladonna for relaxation of the vessels, or one of the nitrites if there is spasm of the vessels, combined with minute doses of aconite if there is cardiac excitement, or small doses of digitalis if there is cardiac feebleness, will produce excellent results, particularly if the patient leads a regular life, avoids the use of stimulants and tobacco, and subjects himself to gradually increasing cold in the application of cold douches morning and night.

We fear that physicians are often inclined to direct their entire attention to the condition of the heart muscle and to ignore the state of the blood-vessels, both in regard to their functional activity and their anatomical condition.

THE POSTURE OF THE HEAD IN ANESTHESIA.

The writer of this editorial has endeavored in many ways within the past few years to bring before the profession the importance of maintaining the head in a proper position during the administration of an anesthetic, and while he does not wish to be considered as a too ardent advocate of a given method, he sees this one so seldom used, and when employed so valuable, that he believes it should be more widely utilized. At the present time the erroneous idea exists in the minds of many physicians that the proper attitude of the head when breathing becomes difficult or labored is that of extension backward; and supports are taken away so as to allow the head to fall backward or beyond the edge of the table. This stretches the anterior portions of the neck and without doubt opens the glottis and draws the epiglottis away from the glottic opening. Although this movement of the epiglottis is accomplished by this method, the soft palate is strapped across the dorsum of the tongue so that no air can be taken through the mouth, and the patient is forced to breathe entirely through the nose. The nose is theoretically the organ of inhalation, but too often it is obstructed by hypertrophied turbinated bones, by polypi, or by the secretions produced in large amount by the irritant vapors of the anesthetic, and as a result the patient, if required to breathe through the nose alone, will draw air into his lungs only with the greatest difficulty. On the other hand, if the head is thrown forward and at the same time the neck extended by drawing the head of the patient, lying prone on the table, toward the anesthetist, the epiglottis is drawn away from the glottic opening more effectively than in the position of backward extension, and the soft palate is not strapped over the tongue but is, if anything, far removed from it, with the result that the patient can breathe through the mouth as well as the nose. That this position of the head and neck is the correct one to obtain the easiest access of air to the chest is proved by removing the basilar process of the occipital bone in a cadaver, when the wide opening of the glottis and the epiglottis well carried away from it can be readily seen. Further, it will be remembered that the professional runner and the trotting-horse do not extend the neck and throw the head backward when they seek to get more air into the lungs, but they extend the neck and throw the chin and head forward as far as possible. This straightens the air-passages and gives free entrance to the air.

These views were advanced nearly ten years ago by Dr. Edward Martin and the writer, and we have found in practical experience that they are correct. If this posture can be maintained as long as breathing is labored much relief will be had.

The second point of importance is that the tongue should not be drawn out and over the lower teeth, but outwards and slightly upwards. If this is done the traction is conveyed directly to the epiglottis, which is thereby removed from the glottic opening.

THE TREATMENT OF NEURALGIA.

The recollection that neuralgic pain is usually only the manifestation of some other underlying difficulty, and that careful search for and the discovery of this difficulty and its consequent removal will relieve the neuralgia, is perhaps the most important part of the treatment of this affection. At the same time, patients suffering from neuralgic pain urgently demand speedy relief, and therefore it behooves the physician to have ready for instant employment a certain class of drugs which are known to exercise a sedative influence upon nerves or nerve centers which are giving pain because of irritability.

Amongst the common causes of neuralgia, aside from those conditions which depend upon organic lesions in nerve centers, are anemia, eye-strain, what the English would call uric-acidemia, and other disorders of metabolism closely associated with a rheumatic or gouty diathesis, carious teeth, nervous exhaustion, and finally the abuse of such drugs as coffee and tobacco.

It is quite surprising how frequently the arrest of the tobacco habit in men will cause neuralgic symptoms to disappear, and on the other hand the stopping of the use of excessive quantities of coffee in women will also result in benefit. These neuralgic manifestations by no means infrequently affect other portions of the body than the head. Frequently violent abdominal neuralgia, thoracic pains, or ovarian neuralgic tenderness take the place of cephalalgia.

Among the drugs which are commonly employed for the relief of these conditions we have various combinations of the coal-tar products, such as antipyrin, phenacetine, and acetanilid, with the bromides and caffeine,

and amongst the older drugs of well known reputation the tincture of gelsemium in full doses with an active fluid extract or tincture of cannabis indica, this combination probably standing next to the coal-tar products in its ability to relieve neuralgic pain, whether it be mild in character or as severe as that met with in migraine. Then, too, it is not to be forgotten that in many cases of neuralgia, depending upon poor circulation and nervous exhaustion, full doses of nux vomica will produce valuable results, although they cannot be relied upon, when disconnected from other supporting treatment, to be of any permanent advantage. As much as fifteen to twenty minims of the tincture of nux vomica may be given two or three times a day, as soon as the patient is known to be not unduly susceptible to its influence. Another combination of remedies which is without doubt of much value in neuralgias depending upon malarial intoxication, and which also does good in neuralgic pains not arising from this cause, is the combination of a few grains of quinine with a minute dose of morphine; the only difficulty with this treatment being that the patient is apt to become addicted to the hypnotic influence of the poppy derivative. Then, again, we have another drug, which is without doubt of very great value in certain forms of neuralgic pains, particularly in the head, namely, croton chloral, which is given in five-grain pills every half-hour until twenty grains are taken, and often proves of singular service where other remedies have failed. It is a noteworthy fact that in reflex dental neuralgias it seems to be of less value than in other forms of pain affecting the distribution of the fifth nerve, and that it is practically useless in the pain of toothache. It also possesses the additional advantage that it causes a tendency to sleep, which is useful in many cases.

In old persons, with atheromatous blood-vessels and high arterial tension, who suffer from violent neuralgic pains affecting the fifth nerve, very great good can often be accomplished by the use of full doses of nitroglycerin administered simultaneously with full doses of strychnine or nux vomica. In addition to these measures local freezing of the tissue surrounding the superficial nerve, by means of ether, in an atomizer throwing a fine spray, by the use of chloride of ethyl, or by the use of ice and salt, is not to be forgotten, while in other instances a high degree of heat locally applied by means of a baked salt-bag or other warm object will be efficacious. In neuralgic pain of deep-seated nerves, massage in the neighborhood of the nerve and over its course with a round glass rod which will dip deeply down into the tissues is often very useful, particularly if an ointment containing menthol is smeared over the part to lubricate the skin and exercise the benumbing and counter-irritant influence of this derivative of peppermint; and in still other cases a continuous galvanic current of electricity will give great relief.

THE OPERATIVE TREATMENT OF CARCINOMA OF THE RECTUM.

It is instructive to note that while in countries other than Germany the excision of cancer of the rectum, particularly by Kraske's method, which implies a resection of the sacrum, has never become popularized in the sense that it is performed by practically every active surgeon—as, for instance, is the operation for removal of carcinoma of the breast—a growing confidence in the results of the operation and a wider application of it on the part of the general surgeon seem to be noticeable features of German surgical progress. In France some surgeons have even abandoned the radical operation in favor of colostomy. This is also true of England.

For the success of radical operation it is essential that diagnosis should be made comparatively early and that the surgeon should have become familiarized with an efficient operative method. This latter, and certainly most important requisite to success, is not attained except by practice, and hence in countries where the radical operation is looked upon with disfavor this attitude is likely to change slowly, since the results of the few and necessarily ill-performed operations are likely to be unfortunate.

One of the objections urged against radical operation is that it is attended with a very large operative mortality. This, however, at least in the hands of surgeons who are fairly skilled, varies from nine to thirty per cent, the average perhaps being about midway between these two figures.

A second objection to the radical operation is based upon the common conception that incontinence always results when the sphincter is partially or completely removed, or when its nerve connections are severed. As a matter of fact, fecal incontinence is far less to be dreaded than is rectal narrowing or

occlusion. The vast majority of patients who have been subjected to resection for cancer, and who have recovered, have had fairly good control over alvine evacuations, excepting during attacks of diarrhea; and by means of diet and perhaps medicine have been able not only to pursue their regular work, but to take their part in social functions, and to know in abundant time for making proper provision when the evacuation was to take place.

Wendel has records of seven cases in which the bowel was completely continent. He has just published (*Deutsche Zeitschrift für Chirurgie*, January, 1899) statistical studies of Küster's 126 cases of rectal carcinoma. Of these, ninety-five were subject to radical operation, twenty-five to palliative operation, and in the remainder intervention was either refused or was not called for. It is noteworthy that two cases were under twenty years old and one over eighty. It is also noteworthy that a larger number of men are recorded as over seventy years of age than are noted under forty. Küster operated in every case in which total removal was mechanically possible. In eighty-seven out of the ninety-five cases subject to radical operations, the tumor was a cylindrical-celled epithelioma. In eight cases it was a squamous epithelioma.

As to the technique of the operation, twice it was possible to seize the tumor with toothed forceps, draw it through the anus, and thoroughly extirpate it by means of scissor cuts through sound tissue.

In eighty-seven cases it was necessary to perform either amputation or resection of the rectum. This was accomplished either by the perineal method (Lisfranc), the sacral method (Kraske), or through an abdominal opening.

The perineal method was followed in forty-six of the ninety-five cases. Eight times it was possible to remove the growth without complete transverse section of the rectal wall. The sacral method was followed in forty-six cases. Resection of the gut through an abdominal opening was performed three times.

Palliative operations consisted of colostomy and scraping with a sharp spoon. This form of curettement was performed in fifteen patients. Four perished of perforative peritonitis, and one of lung embolus. The average duration of life following it was about three months, and the stenosis for the relief of which it was performed shortly recurred; hence this method of treatment should be abandoned, since at best it gives very brief relief and is attended with positive danger.

Of five colostomies, two died—one of myocarditis and the other of pneumonia. The duration of life in the remainder was undoubtedly lengthened, and the course of the cancer was much slower than if this operation had not been performed.

Of the patients subject to amputation by the perineal method, 15.8 per cent died, and 21.5 per cent were cured. The average duration of life after operation was three years and two months. The vast majority perished of recurrence. The wounds usually healed by first intention.

Of the patients subject to the operation facilitated by sacral excision, the average duration of life was two years and six and a half months. The mortality was thirty per cent, and fifteen per cent were cured. It is worthy of note that practically only those cases too extensive or too highly placed to be reached by the perineal route were subjected to this operation.

As to the general results of all forms of operation, 9 or 9¼ per cent of these cases have been free of disease from three to twelve years; seven perished of other disorders, showing no signs of recurrence for from four to eight years after operation, giving the percentage of radical cure as 16.8.

Of Kraske's eighty patients, 18.7 per cent died before being discharged from the hospital. The same percentage were still living at the time of the report, and 6.2 per cent had been for from four to eight and a half years free from recurrence.

Hochenegg, of eighty-nine patients, reports eleven as free from recurrence for from four to ten years, three as free from two to three years, and nine as free for one year.

Mikulicz, of sixty-six patients operated on since 1890, reports four as living without recurrence more than three years.

Wendel no doubt expresses Küster's views when he states that the perineal route, if it is at all practicable, is easier, safer, attended with a shorter convalescence, and followed by better rectal control than is the sacral method.

It is statistics such as these which justify the surgeon in attempting the operation, which at the best is likely to be bloody, dangerous, and difficult. The prospect of radically curing even ten per cent of cases is sufficient justification when the alternative is an absolutely certain and usually a very distressing death.

ANTISYPHILITIC TREATMENT FOR HYDROCEPHALUS.

D'Astruc has described two forms of hydrocephalus, commonly called syphilitic. The first form is of syphilitic origin, due to the arrest of development of the brain, which is dependent on the dystrophic influence of the parental disease. Under such circumstances there are found only the cerebral malformations without the active lesions of hereditary syphilis. This condition could rightly be called parasyphilitic hydrocephalus. The second form is a true syphilitic hydrocephalus, developing during the first months of life and dependent on the cerebral localization of an active hereditary disease.

The essential lesions, as shown by autopsies, consist in alteration of the ventricular ependyma and the choroid plexus. There is in these regions a marked infiltration of embryonic cells which may cause softening of the upper portion of the striate-ganglia.

Sometimes hydrocephalus is the first indication of hereditary syphilis. More often it is preceded by lesions of the skin and mucous membrane. The affection, as in non-specific hydrocephalus, may be acute, subacute, or chronic. It usually terminates fatally.

Edmund Fornier, out of 170 collected cases of hydrocephalus due to hereditary syphilis, notes that five were benefited and six cured by antisyphilitic treatment.

Audeoud (*Revue Médicale de la Suisse Romande*, Jan. 20, 1899) reports a case of a child born of a mother who showed the signs of syphilis and had suffered from a number of miscarriages. After treatment she carried a child to full term, which four weeks after birth exhibited coryza and other active syphilitic surface lesions such as mucous patches. The symptoms disappeared under mercury and iodides, but recurred later. When four months old, hydrocephalus was first noted and rapidly became more marked. The child suffered from nystagmus and there was a progressive loss of intelligence. Under the influence of specific treatment the symptoms rapidly improved, and in a year had entirely disappeared.

There can be little doubt that syphilis is a common cause of hydrocephalus. The disease is much more common among children of syphilitic parents than among any others. In certain families hydrocephalic children alternate with those which are in other ways obviously syphilitic, or are born after a series of miscarriages. Hydrocephalus is often associated with other marks or symptoms, and the signs of syphilis are much more frequent among hydrocephalic children than they are among those not thus afflicted; and finally, hydrocephalus is sometimes cured by specific treatment.

It is obvious that the parasyphilitic form of the affection—*i.e.*, that not dependent upon active specific lesions, but upon the dystrophic influence of the syphilitic heredity—is not to be reached by medication, hence it would seem wise to make but a single vigorous effort to influence a hydrocephalic child of syphilitic parentage by specific treatment; this failing, to abandon a treatment which unless it accomplishes its object can work only ill. Mercury, in the form of inunctions or hypodermic injections, is the drug on which main reliance is to be placed, the iodides being also used, in full doses.

Reports on Therapeutic Progress

CUBAN MALARIAL FEVER.

At a recent meeting of the Medical Society of the County of New York M. H. THOMSON said that from his experience the treatment for Cuban malarial fever which gave by far the best results consisted in the administration of fifteen grains of quinine, fifteen grains of powdered ginger, and half an ounce of paregoric, twice a day—in the forenoon and afternoon. Under this treatment the patient received an equivalent of three grains of opium each day. This plan was tried on forty-seven patients, all of them actively febrile, and eighty-four per cent severely so. Fourteen febrile patients, of whom sixty-five per cent were severe, were treated with Warburg's tincture alone as a control experiment. In twenty-two, or forty-seven per cent of the number who took the paregoric, there was a fall of temperature to normal within twenty-four hours, and it did not rise again. The treatment was continued from eleven to fourteen days, and the patients were then discharged. In ten patients, or twenty-one per cent, from thirty-six to forty-eight hours was required to reduce the temperature to normal. In three the treatment failed to control the fever. One of these, however, had a colitis, to which his continued fever seemed to be mainly due. No relapse was recorded in any patient taking the paregoric treatment after the temperature had once been reduced to normal. In five cases, or 10.5 per cent, the paregoric treatment could

not be continued because of the nausea excited. They were then given quinine and ginger alone, and they recovered, but relatively slowly. Six out of the forty-seven proved in time to be cases of mixed infection with malaria and typhoid fever. There were only two patients who showed the effect of opium; the remainder not only were not drowsy, but seemed to be aroused from their stupor by the treatment.

Of the fourteen patients treated with Warburg's tincture, in two, or fifteen per cent, the temperature was reduced in twenty-four hours. Both of these were patients who had been recently admitted, and who had been treated with quinine previously. In twelve, or forty-five per cent, the time required to break the fever varied from forty-eight hours to ten days. In seven of the cases the Warburg's tincture failed to control the fever after ten days. All of these patients recovered in about twenty-four hours under the paregoric treatment. Of the remaining thirty-nine out of one hundred, twenty-six were admitted as convalescent, and without any fever. They were all extremely anemic, and the plasmodium malariæ was found in eighty per cent. They were all given the paregoric, quinine, and ginger treatment, with as good general results as in the febrile cases. In the delirious afebrile cases the paregoric seemed to act especially well. Both from the blood examinations and from the clinical features, Dr. Thomson said that it was evident that the Cuban malarial parasite belonged to the estivo-autumnal type, and that its cycle of development in the blood is very irregular as to time. This would seem to indicate that the action of quinine is only secured at certain stages of the life history of the parasite, and emphasizes the practical benefit of administering this drug at certain times. In the more or less continuous forms of malarial fever it seemed to lose much of its effect. When, therefore, the physician has to deal with an infection not having definite remissions, quinine is still valuable if given at proper times, but increasing the dose in these cases seems only to make matters worse.

For many years Thomson had been accustomed to prescribe quinine with an equal quantity of ginger, and had obtained better results in our common agues than with quinine alone. Opium had been known to be of benefit in the treatment of malarial fevers since the time of the ancient Greek and Roman physicians. In this century it has been highly praised by Dixon, of South Carolina, as a remedy for breaking the cold stage. Sir William Roberts, who served on the commission in India which investigated the method of treating malarial fevers by the use of opium, maintained that the antimalarial properties of opium were due to its alkaloid, commonly called narcotin, but which, he said, was better described as anarcotin. This alkaloid constituted a considerable proportion of the drug, varying in different samples of good opium from one-fourth to two-thirds of the percentage of morphine. Sir William O'Shaugnessy in 1838 had reported one hundred and thirty-eight cases of malarial and remittent fevers treated by opium, with ninety-five per cent of cures. This had induced the Indian authorities to institute further experiments, and as a result anarcotin was prepared in quantity and distributed to the medical depots throughout India. Sir William Roberts claimed that anarcotin was scarcely inferior to quinine, and in some classes of cases was actually superior to it. The speaker said that it was a question whether or not the beneficial action of the paregoric treatment was due to the presence of anarcotin; he was inclined to believe that the opium acted as a stimulant, thus enabling the system to cope better with malarial infection. It was because of its superior stimulating properties that he had chosen the paregoric preparation of opium. Certainly in the majority of the cases the drug acted as the reverse of a narcotic, and rather as a general cardiac and nervous stimulant.

The cases of mixed infection with typhoid fever and malaria ran the usual course of typhoid fever, and they were treated without any quinine. Two of the patients, after being fairly convalescent from the typhoid fever, had had an attack of chills and fever, which had soon yielded to the paregoric treatment. During these attacks the plasmodium had reappeared in the blood. Three of the patients died, and, strangely enough, all from an unusual cause—*i.e.*, intestinal hemorrhage. As this accident had occurred only once in one hundred and fifty cases at the Roosevelt Hospital, its occurrence in these three cases led to close investigation of the previous history. This elicited the fact that all of these soldiers had insisted upon continuing at drill for some time after they had been taken ill.

Twelve of the patients were given the artificial Nauheim baths, and twelve other patients, as nearly as possible in the same

condition, were used as a control. In every instance the effect of the cold Nauheim bath was to lower the temperature for a longer time than the simple cold bath. The stimulating cutaneous impression of the carbonic acid gas also seemed beneficial, although the nurses complained of the prickling it produced on their hands.

Nine patients were treated by intestinal lavage every afternoon, six pints of normal saline solution being administered at a time through Kemp's irrigator. For two days before beginning this treatment careful observations were made as to the quantity of urine excreted. During the irrigation treatment the patients were given the same quantity of fluid as on the two days of preliminary observation. . In seven patients the urine was increased from ten to twenty ounces daily. There could be no question that the other symptoms were also improved, so that these few observations should at least encourage one to give the treatment more extended trial. The object of the treatment was to diminish the well known toxicity of the blood in typhoid fever.

SOME REMARKS ON ACNE ROSACEA, WITH ESPECIAL REFERENCE TO TREATMENT.

GILCHRIST, of Baltimore, writes on this subject in the *Maryland Medical Journal* of December 10, 1898. He divides the treatment into constitutional and local measures. In women any menstrual disorder should be corrected as far as possible, and all alcoholic stimulants should be stopped. Good, plain diet should be taken, and the patient should be told to avoid all forms of pork, pickles, salads, especially salad dressings, highly-seasoned foods, rich gravies, sauces, cheese, pastry, candies, cakes, boiled coffee, strong or long-drawn tea, and very hot liquids. The use of sugar and tobacco should not be too liberal. Fresh fruits and green vegetables are to be recommended.

For the constipation fluid extract of cascara sagrada has proved to be the most useful, and it is usually ordered to be taken at night; in some cases Hunyadi water taken in the morning is more efficacious.

Dyspeptic symptoms are often corrected by the attention to diet and the use of the laxatives. If the tongue is much coated an alkaline bitter tonic should be ordered.

Malcolm Morris speaks very highly of the [illegible] of ichthyol internally, in five-grain doses morning and evening, for the flatulent forms of dyspepsia.

This attention to diet and correction of constipation will improve the condition, but will not cure the disease, especially in its second or third stage, so that local treatment is always necessary. This consists in the use of the proper kind of soap, the application of local remedies, scarification, or the use of the electric needle.

When the skin is much thickened, and there are many acne papules and pustules, the German green soap is the best, used with hot water and a piece of white flannel every night, until the skin begins to peel considerably. In the less severe cases white Castile soap is very good. The writer has found five-per-cent resorcin soap (Eichoff's) very efficacious in aiding the treatment.

The chief constituent of lotions and ointments is precipitated sulphur. Speaking generally, lotions are more applicable in the summer months or when the skin is greasy, whereas ointments are more useful in the winter. With the precipitated sulphur, which is made up with lanolin, one can use salicylic acid, two to seven per cent, when the skin is hypertrophied. Sweet almond oil should be added to give a soft consistency to the mixture (one drachm to the ounce). A prescription for an ointment would be as follows:

℞ Sulphur. precipitat., ʒ j vel ʒ iv;
Acid. salicyl., grs. x vel xxx;
Ol. amygdal. dulcis, ʒ j;
Lanolin, ℥ j.
S.: Apply at night after washing.

(The salve should not be gritty, but perfectly smooth.)

As a lotion Kummerfeld's solution, used in varying strength according to the severity of the case, will be found to be very efficacious, especially in connection with scarification:

℞ Sulphur. precipitat., ʒ j to ʒ iij;
Pulv. camph., gr. v;
Pulv. tragacanth., gr. x;
Aquæ calcis, ℥ j;
Aquæ rosæ, ℥ j.
S.: Apply at night after washing.

Unna's mercurial and carbolic acid plaster mulls are sometimes of much value in the early stages of the disease.

These local remedies are very good, but yet they rarely cure the disease of themselves. Scarification or the application of the electric needle is a very necessary adjunct to the treatment.

Scarification can be done in three ways:

first, by linear scarification; secondly, by slitting up the dilated cutaneous blood-vessels; thirdly, by puncturing rapidly.

The writer began this form of treatment by using the first method, which was introduced by Hebra, but soon gave it up as too unsightly, and now uses a less unattractive plan. Linear scarification consists in making a number of closely aggregated linear parallel cuts into the skin about one-sixteenth of an inch deep, and after the bleeding has been stopped by using absorbent cotton, tincture of ferric chloride is applied. This treatment results in the formation of microscopical scars and the disappearance of the dilated blood-vessels by atrophy. A scarifier is a small double-edged instrument shaped like a small arrow-head. The writer does not recommend this plan, as other less unsightly and just as efficacious methods can be adopted. The second method presents the same objection.

The third plan is the best. The writer has used this very extensively, and it is applicable in all stages of the disease, but especially when there are no very large vessels, which can be treated with the electric needle. The bleeding which ensues from the rapid puncturing is sometimes profuse, but it soon stops on applying absorbent cotton. In puncturing, the best plan is to stretch the skin and then puncture perpendicular to the surface of the skin, about one-sixteenth of an inch in depth. After a little practice one can soon puncture quite rapidly, and after a longer trial of this method it will be found that one can make nearly 500 punctures per minute, so that the nose, for example, could be scarified in about ten to fifteen seconds. This plan of treatment is carried out once or twice a week, according to the severity of the case. It will be observed very noticeably how much less severe the bleeding is as the case improves. If similar scarification is done on normal skin very little bleeding ensues—in fact, only a few drops will ooze out of the punctures.

Women, as one would suppose, bear this treatment much better than men, and they appear to stand the scarification very well.

In nervous patients one can benumb the skin by using an ether spray on the skin or ethyl chloride. This form of scarification is never followed by scars. All sebaceous plugs should be expressed, and all acne papules and pustules should be opened.

The advantage of this plan is that the patients look no worse after leaving the office than when they entered, so there is no transient disfigurement, as in the linear scarification.

Lassar has invented an electric motor attached to a puncturing machine with 100 points, which thus allows of greater rapidity of action. This method is especially efficacious for the destruction of the dilated blood-vessels. The galvanic battery is used, and the patient holds the positive pole, with a moistened sponge attached, in the hand, while the doctor uses a fine platinum needle attached to the negative pole.

The writer uses from four to eight cells of a dry silver cell battery. The needle is inserted into a blood-vessel; the circuit is made by the patient grasping the sponge, and if the needle has entered the vessel bubbles are seen to arise in it, the skin around becomes whitish, and the vessel disappears. Only a few seconds is required to produce this result. Each visible vessel is thus treated. No scars are left.

For redness alone the application of both sponges of negative and positive poles over the patch, and moving them about for fifteen to twenty minutes, produces good results. A similar strength of current is used in this method.

In summing up the treatment, this consists, then, of strict attention to diet, correction of any dyspepsia, constipation, menstrual troubles, avoiding the use of stimulants, washing the face in hot water every night, after which a sulphur ointment or lotion is applied, local treatment by scarification for the redness, and the application of the electric needle when any blood-vessels are visible.

SUGAR AS A RATION.

Some trials were made during last year's German autumn maneuvers regarding the value of sugar as nourishment for troops. In each of the companies directed to carry out the experiments ten men, chosen from amongst the least vigorous, were told off as the subjects for experiment, another ten being also selected who were strictly confined to the service rations. The amount of sugar supplied daily to the men was gradually increased, and their weight increased proportionately more than that of those who were without it, while the men themselves were in better health and more vigorous than they had been before. When on the march a piece of sugar relieved hunger and appeased thirst, while, thanks to it, it was found easier to fight the exhaustion produced by the heat

No objection was made by the men to taking the sugar. The results of the experiments were considered successful, and Dr. Leitenstorfer, under whose superintendence they were carried out, has suggested that sugar should be added to the rations in one of the three following ways: (*a*) As a supplementary allowance, with the view of improving the men's daily ration; (*b*) as an integral part of the men's reserve store of provisions, and of the supplies for fortresses, hospitals, and ships; and (*c*) as a temporary allowance for strengthening the men and renewing their vigor on the march.—*British Medical Journal*, Jan. 14, 1899.

SKIN ERUPTIONS CAUSED BY ANTIPYRIN.

WECHSELMANN gives a brief description of the varieties of skin eruptions met with in cases of antipyrin poisoning, and also relates the conditions which he had observed in five cases:

In a man aged thirty-six, who had suffered from attacks of migraine for several years, and had been in the habit of taking antipyrin pretty freely without medical advice, a vesicular eruption suddenly occurred round the mouth and front part of the tongue; the penis, scrotum, and anus were similarly attacked. The eruption was extremely painful. When the antipyrin was discontinued the patient soon recovered. As an experiment a small dose was again administered, and in an hour and a half the eruption reappeared.

A woman aged forty had taken antipyrin for migraine. The lips, eyelids, tongue, and dorsal aspect of both hands were attacked with a painful vesicular eruption. On inquiry she admitted having taken antipyrin for her headaches. At a later date she took half a grain of antipyrin; this small dose was sufficient to cause an eruption identical in every respect to the former one.

A man aged sixty-two, suffering from diabetes, after taking antipyrin for some time, noticed a hemorrhagic eruption on the dorsal surface of his left hand; the skin was edematous. The drug was discontinued, and the eruption immediately began to subside. Pigmentation was noticed for a considerable time after the eruption had disappeared.

A diabetic man, aged sixty-six, for six years had suffered from a vesicular eruption, which occurred every second year. The parts attacked were the dorsal aspect of both hands, the lower lip, anus, and scrotum. After a short time the vesicles burst, leaving a scale which gradually died away.

A man aged twenty-nine had suffered from periodic attacks of "eczema," which one doctor had called syphilitic. In May, 1893, he took three grains of antipyrin for headache, and in half an hour he began to feel a burning sensation in the perineal region, also between the fingers and on the dorsal aspect of the hands; later the toes became affected. Vesicles formed, and the whole progress of the case coincided with his former attacks of so-called eczema. The patient was advised never to take antipyrin, and he had no further skin trouble.—*British Medical Journal*, Jan. 14, 1899.

THE ADMINISTRATION OF SOMATOSE.

JOACHIM (*Pharmaceutische Zeitschrift*, No. 87) has found that patients are often unable to prepare solutions of somatose. The best method of preparing it is as follows: Fill a wine-glass with cold water, and then add three teaspoonfuls of somatose, which must be sprinkled on the top of the water. The wine-glass should be moved as little as possible, so that the somatose remains on the surface of the water. After a few hours the solution is ready for use. The quantity required during the day is best prepared the evening before. The three teaspoonfuls of somatose is sufficient for the day. In the morning a third part may be taken with milk, at lunch, and later at dinner; the remainder should be mixed with soup or porter.—*British Medical Journal*, Jan. 14, 1899.

OIL OF GAULTHERIA IN CHOREA.

LUIGI (*La Riforma Medica*, Nov. 28, 1898) has met with considerable success in the treatment of chorea by means of oil of gaultheria used externally. He used from six to ten grammes of the oil, either pure or mixed with vaselin, as dressing for the upper and lower limbs, alternately, the limbs being afterwards covered with oiled silk to prevent evaporation. Phenol could be detected in the urine six hours after the oil was applied. In some of the cases the drug was given internally as well. The results were very satisfactory, so that the author recommends its use, especially in cases where the other salicylates are not well tolerated. Moreover, the good effects were not confined to cases where distinctly rheumatic symptoms were present.—*British Medical Journal*, Jan. 14, 1899.

THE TREATMENT OF ITCHING.

In *Treatment* of December 22, 1898, SAVILL tells us that the treatment of general pruritus and prurigo merits very careful study, for it makes the lives of many people unbearable. He has met with two cases which resulted in insanity, and one which led to suicide. Baths and other local remedies are sometimes of use. A creolin bath, for instance (in the proportion of 1 drachm to 10 gallons), or an alkaline bath (bicarbonate of sodium 8 ounces, water at 90° F. 30 gallons). Plain warm water sometimes relieves, but not infrequently patients say that it aggravates the condition. Ointments and lotions are practically of very little use, because of the wide distribution of the trouble. A lead and zinc lotion may be tried, or preparations containing a little calamine or bismuth. Hydrocyanic acid seems to have a local sedative action, and a lotion of equal parts of liquor ammoniæ acetatis, methylated spirit, and rose-water is pleasant, because it is cool. But all these measures are only palliative.

We must turn, therefore, to constitutional remedies. Hebra recommended carbolic acid internally in doses of one-half grain. Tincture of gelsemium, twenty minims given thrice daily, has been known to relieve. But perhaps the best of the internal remedies hitherto in use is chloral hydrate, ten or fifteen grains thrice daily. However, it is unfortunately attended by narcotic properties and a dangerous habit may be induced, and the moment it is left off the itching returns as badly as before. Pilocarpine internally, by promoting perspiration, is sometimes useful, as already mentioned. The bromides would theoretically be indicated here, and in cases attended with a marked neurotic element they are useful. But in ordinary cases of prurigo and pruritus, beyond the fact that they induce sleep, and help the patient to cease scratching, they are in his experience absolutely useless, though he has tried them many times.

In 1896 Dr. Savill first tried calcium chloride in large doses, the idea having occurred to him after reading Professor Wright's researches into the effect of this remedy in increasing the coagulability of the blood. The fact that cases of prurigo are frequently attended by erythematous or urticarial exudations seemed to him to point to a tendency in the blood in such cases to exudation, and therefore to increased fluidity—that is to say, diminished coagulability. Consequently, whatever would increase the coagulability might, he thought, relieve this troublesome symptom. The favorable results attending the administration of calcium chloride in the first few cases induced him to try it more extensively, and in almost every case the effect was very striking. Seven cases were published in 1896. Since then many observers have tried the same remedy, and on all hands he has received striking confirmation of the efficacy of this remedy, not only in cases of general prurigo, but also in relieving the itching which accompanies all kinds of eruption.

THE LATEST REPORTS ON THYROID THERAPY.

With the treatment of myxedema, cretinism, Basedow's disease, lipomatosis universalis, cachexia strumipriva, and insanity, it would seem as if the use of thyroid had reached its limitations. The successful administration and beneficial results obtained in some of the above diseases, however, have stimulated many observers and experimenters to make a wider trial of this form of medication, with the result that hardly a week passes by without an attempt being recorded to extend its field of usefulness. Thus we find Hertoghe advocating the use of thyroid as a galactagogue, and his good results have been corroborated by Stawell. Apart from this, the *Klinische Therapeutische Wochenschrift*, No. 24, 1898, mentions spastic torticollis, tetany, acromegaly, Parkinson's disease combined with struma and scleroderma, as conditions in which the administration of thyroid gland has proved beneficial. Delace reports the case of a woman suffering from hemophilia, with bleeding gums, excessive menstruation, and purpura, in whom thyroid effected a complete cure. In gynecology good results have been reported from the administration of the extract in fibroid tumors, the growth having decreased in size and the general health improved. In dermatological practice the remedy has found its principal application in psoriasis and ichthyosis, although premature grayness has responded to its use.

The dosage, method of administration, and danger-signals are no less important than the indications for its use. The hypodermic administration of the liquid extract and the grafting of the fresh gland have long fallen into disuse, and the tendency of the present day is to administer the powder or to give tablets or capsules prepared from the desiccated fresh gland. The dose varies with the

individual, and for this reason it is advisable to begin with small doses, which should be gradually increased until the desired effect is produced. Beginning with one or two grains a day, as much as fifteen grains may be administered, the prescriber always being on the *qui vive* for poisonous symptoms. During the course of administration especial attention should be given to the respiratory and cardiac apparatus, and at the first appearance of rapid pulse, embarrassed respiration, rise of temperature, vertigo, or gastric disturbance, its use should be abandoned.

Thyroid was the pioneer of the animal extracts, and thus far may be said to hold the first rank. Its field of application has been so varied that it is to be hoped that physiologists and pathologists will study its *modus operandi* more thoroughly, so that its administration in all conditions may be based upon strictly scientific grounds.—*Medical Record*, Dec. 31, 1898.

THE TREATMENT OF OBSTINATE CONSTIPATION BY MASSAGE APPLIED TO THE HYPOCHONDRIUM.

BERNE has reported the treatment of this class of patients by massage applied exclusively to the region of the gall-bladder, just below the diaphragm, for the purpose of increasing the flow of bile and improving the activity of the abdominal contents. This method is particularly useful in those cases where there is relaxation of the abdominal wall and a general tendency to enteroptosis. It is well, however, not to employ this treatment should there be any possibility that the patient is suffering from gall-stone, since massage might produce a cholecystitis.

The operator passes the tips of his fingers and the ball of the thumb over the soft tissues immediately below the ribs, following the line of the lowest rib, making continuous and deep pressure, the patient lying on the back with the knees drawn up and taking a full inspiration so as to push the liver down under the operating hand. The massage lasts for about ten minutes each day, and it is stated that ten or twelve treatments are usually efficacious, but the treatment should be continued for thirty or forty days if the result is to be lasting.

As a proof that this treatment increases the flow of bile into the intestine, we find that the stools become less fetid, contain a greater quantity of bile, and that the constipation is decreased.—*Revue de Thérapeutique Médico-Chirurgical*, Dec. 1, 1898.

THE SURGERY OF THE POSTERIOR MEDIASTINUM.

The mediastinal spaces are among the territories most recently conquered by the advancing army of surgeons. Their invasion has, however, been quite gradual. Both Hippocrates and Galen make mention of procedures to be employed in dealing with intrathoracic disease, but it is only within the antiseptic era that any real advance has been made. The simple operation of thoracotomy, which was then in high disfavor, was in 1841 made the subject of an appreciation and approval by Sedillot; but until Moutard-Martin reintroduced the operation in 1872 no general adoption of it can be recorded. Since then, however, it has leaped into general favor, and now it is one of the simplest and most frequent of operations. Emboldened by its success, several operators—Estlander, Letièvant, Schede, and others—suggested and carried out a wide extension of its principle, and the method of thoracoplasty became, through their endeavor and example, a classical operation. But more than this resulted. By multiplying experience it began to be recognized that the pleural sac has been held quite unnecessarily in dread. It was seen that much freer interference with it could be safely tolerated. By experiments upon animals Glück and Schmidt showed that the healthy lung was capable of being removed wholly or in part; and Biondi, after artificially producing tuberculosis of the lungs, dealt with the affected portion by complete removal. In 1885 Omboni fulfilled expectation by showing that wounds of the human lung could be treated by immediate suture with success, and the possible surgical achievements in this direction received their final completion by the successes of Tuffier, Lowson, and Doyen in the operation for removal of diseased human lung.

That other organs lying within the chest might be brought within the reach of the surgeon's knife was first demonstrated by Nasiloff, of St. Petersburg, who in 1888 made a series of investigations on the cadaver. Conclusions very similar to his were arrived at by Quénu and Hartmann in 1891. These three observers had all agreed that the shortest and best method of reaching the esophagus as it lay within the chest was by means of an incision to the left of the vertebral column. Portions of three, four, five, or more ribs were resected and the pleura stripped up. Potarca in 1893, and again more recently, advocated, as a result of many

observations made on the cadaver, and by experiments upon dogs, that the shortest and most advantageous route to the posterior mediastinum and the esophagus lay through an incision to the right of the middle line. Other contributions were made to the subject by Ziembicki and Bryant, but the best, the fullest, and most complete account was furnished by Obalinski in 1896. This author related five cases of suppurative posterior mediastinitis treated by Nasiloff's method, with subsequent drainage, which had been under his own observation in Rydygier's clinic, and recorded eight others observed by Morian, Ziembicki, and Krynski. Of the thirteen cases, three were acute, ten chronic. The latter were dependent upon tuberculous disease of the dorsal vertebræ. The results were, on the whole, satisfactory.

The most recent contribution to this subject appears in the last number of the *Archiv für Klinische Chirurgie* from the pen of Professor Rehn, of Frankfort. Two cases are recorded—one of cicatricial contraction of the esophagus, the result of swallowing some caustic fluid in an attempt to commit suicide by a young man aged twenty-two; and the other a case of malignant stricture of the esophagus in a man aged forty-nine. In the former the esophagus was exposed by a curved incision on the right side of the dorsal vertebræ, and the removal of portions of the fourth to eighth ribs. The pleura and the lung were easily drawn away. A sound in the esophagus showed the site of the stricture. A longitudinal incision was made through the stricture, the sound passed on into the stomach, and the esophageal wound stitched over the sound. In the second case a large growth in the esophagus was everywhere adherent. The pleura was wounded. Both patients died—the former after a prolonged illness, during which he became progressively exhausted; and the latter after six days of cardiac failure, due, as shown by post-mortem examination, to old-standing pericarditis and myocarditis.

These operations of Obalinski and Rehn prove, then, that it is physically possible, without wound of any important viscus, to reach the esophagus as it lies within the chest. It is therefore the question of early diagnosis which requires further elucidation. It may be that in esophagoscopy lies our means of solving this difficulty. Good work has already been done in this direction by Mikulicz, Rosenheim, von Hacker, and others, and a more extended use of the method may enable us to recognize in their early stage the exact causes of esophageal obstruction. It seems not improbable that in a case of malignant disease diagnosed early and treated in some such manner as that adopted by Rehn, a successful resection of the diseased portion of the esophagus may in the near future be recorded. As yet, however, the subject is merely one of promise unfulfilled.—*British Medical Journal*, Jan. 7, 1899.

TREATMENT OF ASTHMA.

GOLDSCHMIDT (Munich, 1898) closes an essay on this subject with a consideration of the treatment of the affection. He divides it into (1) purely medicinal, (2) the physical, and (3) the inhalation treatment. He attaches great value to the use of morphine in some cases, especially where the attacks are infrequent but pronounced. If morphine is not well borne, then chloral may be used in a dose of two grammes, to be repeated in doses of 0.5 gramme every quarter of an hour until sleep is induced. More than five grammes should not be given in this way. In cases of prolonged asthma with expectoration, iodides combined with expectorants and opium are often useful. Amyl hydrate also acts extremely well, but sulphonal and trional are useless. Stramonium fumigation may be of great value, but sometimes fails. Occasionally antipyrin and quinine may be useful. The attacks return after the chloroform narcosis passes off. Expectoration must be encouraged, and here the iodides are of most service; they may be given over long periods of time. In cases where expectoration is abundant iodides may not only be useless but harmful.

Goldschmidt then discusses the value of the compressed air cabinet. This is useful in some of the sequelæ of asthma, but not in the actual acute attack, which may indeed be made worse by it. Inhalations are far too little appreciated in asthma. Irritating inhalations which produce cough must be avoided. The author attaches some value to hydrotherapeutic treatment in some cases of asthma. The patient should gradually be accustomed to colder baths of short duration with douches. Even when catarrhal symptoms are present the body may be vigorously sponged with water at 18° C. Warm drinks should be given at the same time. In some cases of permanent asthma baths at 27° C. with douches at 12° C. may be of service. When these fail vapor baths may be of great

value, but they are sometimes followed by untoward symptoms; they should be limited to two in the week. Finally, in case of an acute attack or an exacerbation the treatment is begun with stramonium fumigation. If this fails, strong stimulation of the skin with hot water should be tried. If these measures have previously been ineffective, morphine or chloral should be given.—*British Medical Journal*, Jan. 7, 1899.

THE TREATMENT OF TETANUS BY THE INTRACEREBRAL INJECTION OF ANTITOXIN.

The *British Medical Journal* of January 7, 1899, contains an article by SEMPLE upon this topic. The details of the operation are as follows: The patient is given an anesthetic, the hair is shaved off over the forepart of the scalp, and the skin made aseptic. An imaginary line is taken over the head from one auditory meatus to the other. Another line is taken from the base of the nose to cross the first line at right angles on the top of the head, and a third line from the outer angle of the orbit to where the first two lines cross each other. The center of the last line is the seat of operation, and is in front of the motor areas of the brain.

Having selected this site, an incision of about half or three-quarters of an inch in length is made down to the bone. A small hole is now drilled through the bone with an Archimedean drill having a movable collar, so as to regulate the depth to which it penetrates. The hole in the bone need only be a little larger than the needle of the syringe, which is to be inserted through it.

The syringe has a screw piston and the needle is attached by about three inches of rubber tubing. The needle is about two inches in length, and has a rounded point. It is inserted through the hole drilled in the bone, straight into the brain substance as deep as it will go, and an assistant holds it perfectly steady while the operator very slowly screws down the piston, so as to allow the antitoxin to soak into the substance of the brain drop by drop, to avoid breaking up any brain tissue. It should take at least ten minutes to inject 2½ cubic centimeters. When this amount has been injected the needle is withdrawn, the edges of the scalp wound are drawn together by two or three stitches, and the wound sealed up with collodion and cotton-wool. The same operation is now repeated on the other side.

The object of using a round-pointed needle is to avoid puncturing a vessel. A sharp-pointed needle might possibly transfix an artery and produce hemorrhage, whereas a round-pointed one would glide off a vessel and go past it.

The antitoxin used is double the strength of ordinary antitoxin, and although only five cubic centimeters is given (2½ cubic centimeters on each side), it represents the amount of antitoxin present in ten cubic centimeters of the original serum.

The dried antitoxin from ten cubic centimeters of the ordinary antitetanic serum is put up aseptically in glass tubes, and sent out from the Pasteur Institute, Paris, ready to be dissolved. The tube containing the dried antitoxin should be opened without contamination, then five cubic centimeters of sterile water added to dissolve it. When the antitoxin is in complete solution it is filled into a sterile syringe of the pattern described (Roux's pattern, five-cubic-centimeter syringe), and is now ready for use.

In addition to the antitoxin given intracerebrally, the patient receives twenty cubic centimeters daily for two, three, or four days, according to circumstances. The antitoxin given intracerebrally immunizes the higher nerve centers before the toxin has been fixed there. The antitoxin given hypodermically renders the blood antitoxic, and the toxin as it becomes absorbed from the source of supply—wound, bruise, abrasion, or any other source, wherever it may be—is neutralized as soon as it enters the blood-stream.

The advantage of giving the antitoxin hypodermically in addition to intracerebrally is evident when we reflect that the tetanus bacilli may still be cultivating themselves, and toxin still being absorbed.

CALOMEL IN TYPHOID FEVER.

ANDRIEVSKY (*La Semaine Médicale*, Dec. 28, 1898) has made in the Russian military hospital of Krasnoie-Sielo a series of therapeutic experiments with the object of determining the value of calomel in typhoid fever. In seventy-one cases he gave calomel in a dose of thirty centigrammes thrice daily, while for the purpose of comparison he gave quinine in the same doses in forty other cases. The patients in the first group continued to take the calomel till their evening temperature became normal; this result was obtained after a total amount of the drug varying from eight to twenty grammes had been

taken. Stomatitis never occurred, nor was diarrhea aggravated; moreover, the disease in all these patients was mild in type, and often aborted. The fever abated more quickly and the mortality (2.82 per cent) was less than in the cases treated with quinine. No patient who was out on the calomel treatment within the first week of the illness died. Andrievsky concludes that although calomel is not a specific, it is a most useful remedy in typhoid fever.—*British Medical Journal*, Jan. 7, 1899.

ON THE CAUSE OF SO-CALLED PHOSPHORUS NECROSIS OF THE JAW IN MATCH-WORKERS.

STOCKMAN, of Glasgow, contributes to the *British Medical Journal* of January 7, 1899, an article dealing with phosphorus necrosis. In every case he examined the pus was very fetid and was greenish, or brownish, or grayish in color. Attempts to make cultivations from the pus revealed the presence of staphylococcus albus, streptococci, and numerous other organisms, none of which could reasonably be regarded as the cause of the cario-necrosis.

It is well known that tubercle bacilli cannot be cultivated from pus, but on staining cover-glass preparations of the pus by the Ziehl-Neelsen method the bacillus tuberculosis was found in every case. As is usual in the discharge from tuberculous bone, the organisms were few in number and difficult to find, except on the closest and most careful examination. On centrifugalizing the pus and then examining the sediment they were more easily detected. Sometimes several cover-glasses had to be examined before any of the organisms were seen. Most of the bacilli were perfectly typical in appearance, others were small and thick, resembling the form usually found in the urine. They were scattered about singly or in small clumps, or in groups of one or several dozens.

Inoculation of guinea-pigs with the pus did not infect these animals with tubercle, and hence the bacilli must be regarded as being either dead or as having almost entirely lost their infective virulence. It is now proved, however, that tubercle bacilli in this condition are quite capable of setting up and maintaining local suppuration and irritation for an indefinite time. Besides, they are assisted by the action of the pyogenic organisms with which the pus swarms. The condition of the tubercle bacilli is probably to be explained by the fact that all the cases which Dr. Stockman has had an opportunity of examining are recovering, and have been under treatment for very long periods with antiseptic mouth-washes, etc. The condition generally is exactly similar to what is seen in tuberculosis of the jaw in cattle and in tuberculous disease of other bones in man. The presence of the tubercle bacillus can hardly be regarded as fortuitous, seeing that it was found in every case, and its presence is held, so far as our present knowledge goes at least, to be proof positive of the tuberculous origin of any lesion.

If further proof of the tuberculous nature of the jaw disease were wanted, it is to be found in looking through the accounts of post-mortem examinations of fatal cases. In most cases death occurs from tuberculosis of the lungs. Whether this is due to infection from the jaw tubercle, or whether the phosphorus fumes damage the lungs, and make them more susceptible to direct infection, Dr. Stockman is unable to say.

General tuberculosis is also not uncommon, while tubercle of the abdominal glands and tuberculous ulcers of the intestine are almost invariable, these last arising certainly from infection by swallowing the pus. Abscess in the brain, purulent pleurisy, and tuberculous meningitis are also occasional causes of death. Hectic fever and emaciation always accompany fatal cases.

The part which the phosphorus plays in the process is not far to seek. The acid fumes (phosphorous and phosphoric acids) produced by its oxidation in the air have no effect on bone covered by gum or mucous membrane; but when they can penetrate to the bone directly through the aperture left by a decayed or extracted tooth, or any injury, they erode the bone, weaken its nutrition and resisting power at this small spot, and make it susceptible to infection by tubercle bacilli. The bacilli, having made good their foothold, spread slowly in some cases and with disastrous rapidity in others. Dr. Stockman says he thinks he is correct in saying that the great majority of workers in match factories have carious teeth, and yet only a very small portion of them become affected with cario-necrosis of the jaw—namely, those of them who, owing to their home surroundings or to individual predisposition, become readily infected by the tubercle bacillus. V. Bibra and Geist state that the disease may occur weeks or months after the patient has left the match factory,

and in one of their reported cases the woman had actually been eighteen months away from the work before any symptoms began. This in itself is almost complete proof that the phosphorus fumes are only a predisposing cause, and that the disease depends on subsequent infection. It is well known that V. Bibra and Geist, and later Wegner, produced suppuration and cario-necrosis in the jaws of rabbits by injuring the periosteum and then exposing the animals to phosphorus fumes (on uninjured rabbits the fumes had no effect). The rabbits all died in from five to ten weeks' time, and were found to have tubercle of the lungs. Dr. Stockman experimented in a different way, as it is evident that these animals had become rapidly infected from laboratory cages in which they were kept. He got new wooden hutches made, placed them in a room where animals had not been previously housed, and kept them scrupulously clean. In the hutches pieces of phosphorus were placed in a mortar on damp earth (to avoid risk of fire) in such quantity that the cages were constantly filled with the fumes in much greater amount than can possibly occur in any factory. Four rabbits were then placed in the hutches after the periosteum and gum had been removed over a considerable portion of the upper and lower jaws in each. In one a tooth was loosened in addition, the operations being all performed under chloroform. They seemed to suffer no inconvenience either from the operation or from living in the phosphorus-fume atmosphere. It has been very difficult to prevent the gum growing over the exposed bone, and after many weeks there is not the slightest trace of any jaw affection. The exposed surface of bone has become slightly eroded and rough, but whether from the action of the acid fumes or from that of the bacilli of the mouth it is impossible to decide.

The treatment hitherto pursued in cases of phosphorus jaw has been to wash out the mouth with deodorant and antiseptic lotions, and wait until the necrosed pieces of bone come away. This is always extremely tedious, and may last many years. In extreme cases the whole lower jaw, or half of it, or parts of the upper jaw, have been excised. Sometimes by so doing the whole of the infected portion may be removed, but frequently the disease has again broken out in a neighboring part of the bone. It is evident, however, that early operative interference is called for, and that the original tuberculous focus at the root of the tooth should be removed at once.

As regards prophylaxis, there is absolutely no risk so long as the bone remains protected by gum, and even when carious teeth are present the entrance of the bacilli can be prevented by careful stopping. Efficient ventilation of the workshops will dilute the acid fumes arising from the phosphorus, and make them less active in injuring exposed bone. The infection with the tubercle bacilli is a matter quite apart from the factories and cannot be controlled either by State regulations or workshop rules. It is acquired—as other tuberculous affections are acquired—by certain persons and not by others, and owing to the present all-pervading frequency of the organism persons with exposed bone eroded by acid fumes, and living under bad hygienic conditions, are very apt to become infected. Whether the fumes also weaken the mucous membrane of the lung alveoli and predispose to pulmonary phthisis among persons employed in match factories, Dr. Stockman says he has no information which will enable him to decide. It is just possible that actinomyces or other organisms may also occasionally lodge in the weakened bone, and lead to caries and necrosis, but in those cases which he has hitherto examined he has only found the tubercle bacillus.

THE SALINE TREATMENT OF DYSENTERY.

In the *Indian Medical Gazette* for December, 1898, is an article on this subject by BUCHANAN, of the British army. He thinks that diet is of the utmost importance. Boiled milk (one pint) and sago (eight ounces), soup from goat's flesh, or mutton broth, are also useful. This low diet was rigorously enforced till the stools had become solid. On the first sign of a relapse (*i.e.*, a recurrence of blood or mucus in the stools), a return was at once made to sago and milk. Stimulants were given when necessary, and general treatment ordered for certain cases which were suffering from anemia, swollen gums, or other evidences of previous malarial attack. A return was made to full diet as soon as possible to check loss of weight.

The above statement and detailed cases show clearly the rapid and beneficial action of magnesium in acute cases of dysentery. In mild cases Dr. Buchanan says he is well aware many other drugs act admirably—*e.g.*, castor oil emulsion (according to Dr. Birch's formula) is often given, and has been very successfully used in Dacca Jail under Dr. R.

Macrae's direction. Dr. Buchanan has often used it, but it does not cure so rapidly as the magnesium. Cinnamon powder has been much recommended and acts fairly well in mild cases, but slowly in acute cases. Judging from remarks in the *British Medical Journal*, he thinks there is much misconception as to the use of perchloride of mercury and cannabis indica. In his experience he has found this mixture useless in acute attacks or in acute exacerbations of chronic attacks, but it has its value in the frothy fermenting stools of chronic cases, though now he prefers magnesium. There seems to be a turn of the tide against time-honored ipecacuanha (and he confesses to using it less than he used to do), but he is perfectly convinced as to its value in acute attacks of dysentery, and has over and over again proved its value and certainty. In mild cases it is not necessary, in chronic cases it is of doubtful value and safety, but in sthenic acute cases it acts "like magic." In fact, he says the only drug he knows which besides magnesium will produce such a wonderful change in the stools in twenty-four hours is ipecacuanha, which has now stood the test of half a century (introduced by Scott-Docker in 1848). That magnesium can do so is clear from his cases. A patient will be passing dozens of "meat-washing" stools, with pain, griping, and tenesmus, yet on giving him magnesium in twenty-four or thirty-six hours the stools will be entirely free from inflammatory products and be passed with comfort and ease. As Dr. Wyatt-Smith has said, it can act "like magic." The change is just as remarkable as in what a couple of decades ago writers used to call the "ipecacuanha stool."

Rationale of the Treatment.—Though to the lay mind it seems strange to treat a "bloody flux" by a purgative, yet time gives proof of the paradox. Buchanan conceives magnesium sulphate to act simply by washing out the great intestine, so removing the causes of the inflammation and the inflammatory products. According to Professor Hay, a saturated solution of magnesium produces copious intestinal secretion. The large amount of intestinal secretion in fact acts like an *enema ab interno.*

The drug is best given, he believes, in one-drachm or two-drachm doses every one or two hours (*i.e.*, one to two drachms of the above quoted mixture) of a saturated solution. For all very acute cases and all exacerbations of the chronic form, Buchanan at one time recommended it, but it is obvious that to thus give small doses every one or two hours needs better and more skilled nursing than is available in prison or in regimental native hospitals. Hence, as may be seen from his cases, he has used with safety and success much larger doses at a time. One ounce of a saturated solution twice a day, half an ounce four times a day, or two drachms eight times a day, mean the same amount of the magnesium. He believes, however, that the smaller frequently repeated doses are the surest.

When to Stop the Drug.—It is necessary to secure free, gentle purgation. Dr. Buchanan finds that, as long as the stools remain yellow and loose or soft, the drug should be continued for one or two days after the mucus and blood have entirely disappeared. The quantity may be reduced. As soon, however, as the stools become thin and watery, the drug should be stopped at once. It is surprising how soon after this the stools become soft and solid. He would, however, impress upon medical subordinates that for the successful use of this drug the stools must be seen once a day or oftener. In no other way can the effect of the drug be watched, and in no other way can we know when to stop it. Stools containing sloughs should be washed in a white dish or in a tin painted white inside.

The frequent occurrence of green stools or tarry black stools was noted in his cases. The green color Dr. Buchanan says he does not understand. He has read of it in cases of yellow fever.

While thus strongly recommending magnesium sulphate in the treatment of acute dysentery, he is not to be understood as saying that it will act thus promptly and efficiently in chronic relapsing cases, but he is strongly inclined to believe that if all cases are from the first treated in this way, and care is taken not to discharge them from hospital till every trace of mucus has for several days disappeared from the stools, the chronic form will become much less frequent, except in those cases which occur as the terminal episode in malarial or tubercular cachexias. Another point: of all diseases there is none with a greater tendency to relapse than dysentery, and once a man has had dysentery very slight causes (chills, errors of diet, etc.) will bring on another attack, and such cases, if neglected, rapidly run into the intractable chronic form. Buchanan has lately started treating all chronic cases as follows: Santonin five grains (if there is any suspicion of entozoa), mag-

nesium in small doses for all exacerbations, and in the intervals olive oil in two- or four-drachm doses in milk, twice a day. This with a pure milk diet and infinite patience will, he believes, be as good a method of treatment as is known for these very serious cases. When one has to treat dysentery in a jail or in a regiment with the same patients in one's charge for years, one realizes more forcibly than is possible in public hospital practice the essentially relapsing nature of this protean disease.

DERMATITIS AND OTHER TOXIC EFFECTS PRODUCED BY BORIC ACID AND BORAX.

The London *Lancet* of January 7, 1899, contains an article by WILD, of Manchester, upon this subject. He recalls the fact that a number of cases have now been recorded showing the occasional toxic effects of boric acid externally applied or injected into the cavities of the body. The following instances may be referred to as illustrating the different ways in which intoxication may be produced. Moledenkow reports two cases, in one of which a pleural cavity and in the other a lumbar abscess cavity were washed out for an hour with a large quantity of a solution (five-per-cent) of boric acid. The next evening erythema appeared on the face and spread to the neck, trunk, and thighs. Both patients died—one on the fourth day and the other on the fifth day. Bruzelius reports a case in which a wide-spread erythema appeared after a few days' use of two pints of a solution (four-per-cent) of boric acid, which had been injected into the rectum in a case of chronic diarrhea, in which the patient recovered. Johnson reports a similar case, in which the injection of 3 6 grammes of boric acid was followed by headache, fever, injection of the conjunctivæ, and an erythematous, papular, and bullous eruption on the skin. The drug was easily detected in the urine. Hogner reports three cases of intoxication following the use of boric acid solution for washing out the stomach. There was general depression with an erysipelatous eruption on the face, purpuric spots on the body, vomiting, diarrhea, and blood in the urine; death resulted in one of the cases. Welch records cases following the use of vaginal tampons of boric acid in which were present formication and burning of the skin (chiefly of the face, hands, and feet), severe depression, and afterwards desquamation. In these cases the patients recovered. Lemoine met with a case of intoxication after dressing a bed-sore with boric acid. Dr. Arthur Hall reports a case of extensive burns treated by boric acid ointment in which on the fifth day an erythematous eruption appeared and affected the limbs, the trunk, and the face. The patient died on the ninth day, and a necropsy revealed no organic cause for death.

Cases of intoxication following the internal administration of boric acid are fewer in number, but Corlett saw six cases when treating diphtheria with one-drachm doses of the drug. Poisoning by borax is most frequently due to its internal use for long periods in the treatment of epilepsy. Three cases of psoriasis following this use of borax are reported by Gowers, and the observation is confirmed by Liveing. Stillé confirms the observation of Binswanger already referred to regarding the production of an impetiginous eruption on the skin. Ch. Féré and Lamy report two cases of an eczematous eruption caused by the internal administration of borax, with a photograph of one case. Dr. Féré gives an exceedingly full account of his observations upon epileptic patients treated by borax. He found that in some cases intestinal irritation, nausea, and vomiting were produced. The skin and mucous membranes were dried, the lips were fissured, the hairs became dry and fell out, and the nails were often striated. On ceasing the drug the hair again grew and became thick. Psoriasis might appear, but a special form of eruption was more common, resembling in some points the seborrheic form of eczema. Papules and little red-bordered circles first appeared; they became scaly, enlarged, and ran together to form extensive patches, often symmetrical. The scalp, the arms and the hands, the flanks, and the lower parts of the abdomen were most frequently affected, but the eruption might become general. In other cases the eruption was more scarlatiniform and the desquamation finer; petechiæ might be present, or in other cases furunculi. Edema of the extremities was frequently found, sometimes of the face as well, and albumen might be present in the urine. When extensive tracts of skin were affected there was a cachectic state and loss of flesh. The onset of uremia in renal cases was hastened by the ingestion of borax. The drug could be readily found in the urine, and was detected in from twenty-five to thirty minutes after a dose of four

grammes of borax; in one patient who had taken ten grammes per day for some time it was still present in the urine forty-one days after the last dose, and in another case it was found fifty-three days after cessation of the drug. Both these cases had albumen in the urine.

Dr. Wild says his attention was first directed to the toxic effects of boric acid by the case of a man, aged thirty-eight years, of somewhat alcoholic habits, who had never suffered from eczema or psoriasis. At twelve years of age he had a severe attack of scarlet fever, at the age of sixteen years he had acute rheumatism, and at eighteen years of age gonorrhea and syphilis, for which he was properly treated, and after a mild attack of secondaries he had no further syphilitic manifestations. He contracted gonorrhea several times, and about twelve years previously to his seeing the patient symptoms of stricture of the urethra appeared and were treated, so that for some years he suffered little inconvenience. In 1896, however, the stricture became troublesome and micturition was difficult, painful, and frequent, and the urine was offensive and alkaline and contained pus. About the middle of March, 1896, he commenced to take boric acid (ten grains three times a day), and the condition of the urine improved. Early in May he noticed that the hair on his head was falling out and that the scalp was red and scaly. The hands and forearms became red, slightly swollen, and presented scaly patches on the flexor surfaces. In this condition Dr. Wild first saw him. He considered the case one of seborrheic dermatitis presenting some unusual features. As the urine was then clear, contained no pus, and only a small quantity of albumen, the boric acid was discontinued, though at that time there was no suspicion that the drug had any relation to the skin disease. Ordinary local treatment was adopted, and he very soon improved and was well in July; but in August the bladder symptoms were again troublesome, and he recommenced taking boric acid as before. At the beginning of September the skin eruption reappeared in a more severe form, and by the end of the month it involved the scalp, the trunk, and all the limbs. The affected skin was of a bright-red color and covered with profuse scales of a slightly greasy character. The patches of disease were irregular in shape, roughly symmetrical in distribution, and very extensive in area, leaving smaller patches of healthy skin on the trunk and the proximal parts of the limbs. The hands and forearms and the feet and legs below the knees were uniformly red, scaly, swollen, and they pitted on pressure. Desquamation on the palms and soles occurred in large flakes. The scalp was red and scaly, the hair had almost entirely disappeared from the head, and was very thin on the face and pubes. The face presented only a few scaly papules. Digestion was disturbed, the appetite was poor, and there was marked debility and anemia with loss of flesh. The coincidence of the outbreak with the resumption of the boric acid led him to suspect the drug being the cause of the eruption, especially as the symptoms agreed closely with those described by Féré in patients taking borax. The administration of boric acid was stopped immediately, and a mild sedative ointment was prescribed for the skin; improvement was rapid, and by Christmas he was practically well and had a good crop of healthy hair growing on the scalp. He remained well until May, 1897, when the bladder symptoms were again troublesome, and led him to resort to the boric acid, which undoubtedly gave him relief. In June the eruption on the skin again appeared, but to a much less extent, as he stopped the drug on the first outbreak of dermatitis. In July he was fairly well, but in August he gave way to alcoholic excess, developed uremic symptoms, and died comatose. Whether he took any boric acid in July or August is not known, but the observations of Féré as to the influence of borax in hastening the onset of uremia in patients with renal disease are particularly interesting in this connection. In this case there were three distinct attacks of dermatitis, each one occurring a few weeks after commencing to take boric acid. The chief features of each attack were a diffuse, wide-spread, scaly eruption, edema of the extremities, loss of hair, anemia, and loss of flesh, and recovery always occurred under simple treatment when the drug was discontinued. The diagnosis rested between the toxic effects of boric acid, seborrheic dermatitis, pityriasis rubra, psoriasis, and syphilis; and a careful consideration was given to each of these diseases before the diagnosis of boric acid intoxication was made.

By the kindness of Dr. J. S. Bury, Dr. Wild says he was recently enabled to examine a man aged fifty years, who had suffered from epilepsy for over twenty years. In June, 1898, he commenced to take a mix-

ture containing ten grains of boric acid and fifteen grains of borax three times a day. Early in August the hands began to swell, and they became red and painful and desquamated; the feet, the head, and the body were successively affected in a similar manner. On examination there was edema of the forearms and hands, also of the legs and feet, and the skin was red and scaling freely. The thighs and the lower part of the trunk presented red scaly patches, at the periphery of which minute discrete red papules could be seen. The scalp was red and scaly and bald on the crown, and the hair which remained was very thin. There were a few scaly patches and pustules on the face. Several boils were found on the thighs, the genitals, and the shoulders. There was no history of any form of skin disease before taking the boric acid and borax.

During the past year Dr. Wild has administered boric acid to nearly forty patients who were likely to derive benefit from the drug, and he has carefully watched the cases. In no case has any bad effect followed, though one patient has taken the drug continuously for four months. In one case, that of a man seventy years of age, who took eighty grains of boric acid per day in divided doses for four weeks, there was a distinct flushing and redness of the skin, with the appearance of slight albuminuria. The urine was normal before taking the boric acid, and the albumen disappeared about two weeks after it was discontinued. He says he has taken boric acid himself in fifteen-grain doses without any inconvenience. On one occasion he took 120 grains within four hours. The result was nausea, but no vomiting, and colicky pains in the abdomen, followed by diarrhea seven hours after the first dose, which continued during the night and the following morning. On the next day he suffered from slight headache, a feeling of depression, a want of appetite, and a marked flushing of the skin. The urine was increased, and sixty ounces was passed in the twenty-four hours following the first dose. It contained free boric acid, which was present in that which was first passed four hours after taking the drug, and could still be found twenty-six hours after, but it could not be detected forty-four hours after the administration. A portion of the urine was evaporated to dryness and incinerated, the ash being repeatedly extracted by ninety-per-cent alcohol until there was no green tinge in the flame when the alcohol was ignited. The residue was again ignited, acidified by sulphuric acid, and mixed with alcohol, and on igniting the alcohol, a green flame was at once produced. From these experiments he concludes that while a great part of the boric acid is excreted unchanged, a certain portion is converted into borates (probably sodium) and excreted in that form. He was unable to make a quantitative determination, owing to the fact that as boric acid volatilizes in the presence of steam a large part was lost in the process of evaporating the urine.

Experiments upon animals have been performed by J. Neumann, who found that dogs weighing fifteen kilogrammes could tolerate from five to six grammes of boric acid without other injury than fall of temperature, but larger doses caused in addition vomiting and diarrhea. Quantities up to four grammes were injected into the pleural and peritoneal cavities in a three-per-cent solution without causing inflammation; a five-per-cent solution, however, excited peritonitis. Large doses (ten grammes or more) caused death through nerve and muscle paralysis. Rabbits, pigs, horses, and fowls gave similar results.

From a review of the recorded cases of intoxication from the use of boric acid and borax, it seems clear that two forms must be distinguished—one in which a large quantity of the drug is rapidly absorbed from the alimentary canal, from a serous or other cavity, or from an extensive raw surface; in these cases vomiting and diarrhea, general depression, and partial paralysis of the nervous and muscular systems occur and may cause death. A rash is noted in many cases, especially where the patient recovered or lived some days after the absorption of the drug. The other class of cases results from the administration of boric acid or borax in comparatively small doses for long periods, and the symptoms appear at a variable time after the commencement of the drug. In some of these cases it is mentioned that the kidneys were diseased, in other cases albumen appeared in the urine, and in several cases ending fatally uremic symptoms are described. Whether the condition of the kidneys or an individual idiosyncrasy in regard to the drug is the determining factor in causing toxic symptoms requires further investigation, but it is an important fact that the great majority of persons taking boric acid or borax do so without any injurious consequences. The very rapid elimination of boric acid by healthy kidneys may perhaps explain this immunity.

It is possible that cases of intoxication occur more frequently than is at present recognized. Boric acid may be taken in food without the knowledge of the patient or the medical attendant, and a case of toxic skin eruption resembling eczema, psoriasis, or exfoliative dermatitis may easily be put down as an unusual form of one of these diseases. About four years ago Dr. Wild saw a patient —a female nearly sixty years of age—with extensive desquamative dermatitis affecting the scalp, the limbs, and the lower part of the body, with edema of the legs and the arms. She died in three weeks, and the diagnosis of seborrheic eczema, though appearing most likely from the character of the eruption, was unsatisfactory in view of the edema and the fatal termination. Looking back over the notes of the case there is room for suspicion that it may have been one of unrecognized boric acid poisoning.

Neumann states that from 1 part of boric acid in 1000 to 1 in 500 is sufficient to preserve milk. These amounts are not infrequently exceeded. It may be noted that even 1 in 500 corresponds to 17.5 grains per pint and constitutes a very large dose for an infant on milk diet, and is likely in some cases to produce disturbance of the alimentary canal. In ordering milk diet for cases of kidney disease it ought also to be ascertained that the milk supplied is free from excess of boric acid or borax. The use of boric acid or the borates in surgery and their internal administration, though usually free from danger, ought to be carefully guarded in patients whose kidneys are diseased, and immediately discontinued should dermatitis or other toxic symptoms appear. In suspected cases the examination of the urine for boric acid and borax may afford valuable evidence of the absorption of the drug.

THE PROGRESS OF OTOLOGY.

The *Laryngoscope* for January, 1899, contains an article by LEDERMAN with this title. He begins by pointing out that the retrospect of aural therapeutics recalls visions of the "old-time poultice" and delayed action. Antiseptic surgery has accomplished much for the energetic aurist and has proven a boon for his suffering patient. The study of otology has made rapid strides during the past few years. Its foundation has been laid by the persistent efforts of clinical research.

To-day we recognize the importance of early and liberal incisions through the drum membrane, in assisting Nature to accomplish her purpose. Under proper antiseptic precautions such assistance frequently prevents suppuration in catarrhal disease of the middle ear. The dry method in the after-treatment of such cases is advocated by a number of observers. Too much moisture weakens tissue resistance. A strip of antiseptic gauze introduced in the canal acts as a serviceable drain. When the oral discharge is copious, it is necessary to resort to gentle douching with warmed antiseptic solutions.

In chronic catarrhal diseases of the middle ear free aeration of this region, together with proper ventilation of the Eustachian tube, must exist before definite results can be obtained. The influence of nasal and pharyngeal disease upon ear affections is now thoroughly appreciated by workers in this field of medicine. Adenoid vegetations in the pharyngeal vault are known to be the direct excitant cause in suppurative conditions, especially in early life.

Free nasal respiration augments the Eustachian tube's function, and any obstruction to the circulation of air in these channels must necessarily act as an incentive to aural disturbance.

Politzer's air douche and the Eustachian catheter maintain their usefulness in the treatment of middle-ear affections. Delstanche's masseur combined with the Siegel otoscope form a valuable combination for the relief of ankylosis of the ossicular chain. When employed in this manner ocular observations can readily be made, thus avoiding traumatism of the parts.

For some years Dr. Lederman says he has found undoubted improvement in some forms of chronic catarrhal otitis from the use of medicated oils, sprayed through the Eustachian catheter, and then forced into the middle chamber by compressed air. In these solutions benzoinol was used as the "base" on account of its bland quality. The "return catheter" did not prove as serviceable as the ordinary hard-rubber instrument.

Knapp has called attention to the importance of the functional examination of the ear. In ascertaining the acuteness of hearing, he has found the human voice the best test. The tuning-fork is of great value in determining the range of audition. Belzold's continuous tone series is a valuable apparatus of this kind. This "series" extends from the lowest C-ii (15 v. d.) to C^{8} (1024 v.), and consists of ten clamped forks. It is not a

handy affair, and cannot be employed in routine examinations, as too much time is consumed.

As yet no therapeutic discovery has been offered as a panacea for persistent tinnitus. This distressing symptom frequently baffles our earnest efforts. When the tinnitus is due to circulatory disturbances, some benefit may be obtained from the internal administration of cardiac sedatives. Thyroid extract has been recommended by some, and found wanting by others. Thiosinamine (Merck's) has been suggested in cases of tinnitus, where inflammatory products restrict the movement of the ossicles. Keloid tissue has disappeared under the internal administration of this drug, and the supposition is that fibrous changes in the middle ear will also be absorbed. Clinical data upon this subject are as yet quite meager.

The suprarenal capsule has shown marked contractile properties upon erectile tissue, especially in nasal congestions when applied locally or when taken internally. If ringing in the ears is due to an engorged state of the vascular apparatus, this remedy will no doubt prove of benefit. Various surgical methods are offered in the hope of arresting this harassing symptom. Incision along the posterior border of the malleus, with the introduction of a blunt hook through the opening, and repeated traction upon the malleus handle, has been attempted by some with success. Mobilization of the stapes, together with the removal of the incus and malleus, is recommended by other aurists. It is impossible to promise a cure by such treatment, for recorded cases prove that the tinnitus not only returned, but actually became worse after such interference.

Among the remedies regularly employed to overcome suppurative conditions, boracic acid still holds a prominent place. Antinosine, the sodium salt of nosophen, is recommended as a harmless, non-irritating, and powerful antiseptic. Peroxide of hydrogen has proven itself an excellent pus-destroyer. Formalin in weak solutions is also efficacious.

Trichloracetic acid has been used with good results in stimulating the edges of old perforations of the membrana tympani.

In mastoid involvement early operation is now universally indorsed. When palliative measures have not given the desired result within forty-eight hours, surgical principles should be put into effect. If suspicious of mastoid disease, there is no reason for postponing the radical operation. Delayed action frequently results in extending invasion, which often ends seriously.

In the after-treatment of mastoid disease we must be influenced by the condition of the wound. When feasible we should employ a dry dressing, thus avoiding an excess of moisture, which tends to generate unhealthy granulation tissue. Of late the author has used nosophen as a dusting powder, and has found it very satisfactory. He has observed evidences of the powder in the mastoid wound five days after the dressing, with no signs of retarded healing. Nosophen gauze may also be substituted for iodoform gauze with good effect. This iodine preparation has also given satisfaction in nasal surgery, as it has a decided desiccating action.

Our foreign *confrères* laud the radical operation in persistent suppuration of the middle ear. Panse, Hartmann, Noltenieus, Zaufel, Grunwald, and Passow close the mastoid opening by primary suture, while Trautmann, Jansen, and Siebenmann prefer to treat the disease by keeping an open postauricular wound. When active symptoms cease they close the mastoid opening by plastic ingenuity.

It is true that a fistula behind the ear is a disfigurement, but if a life is at stake no chances must be taken on account of cosmetic reasons. The good results reported by such observers should certainly stimulate us in treating this ailment in a similar manner. Though Stacke's method is not free from complications, cautiousness will materially aid in avoiding serious consequences. Facial paralysis does occur when least expected, but time and electricity will accomplish much in bringing back lost function.

Milligan also advocated early and more frequent resort to antrectomy in chronic suppurative otitis which has resisted careful treatment for two months. The presence of an edematous swelling of the posterior superior meatal wall, "the dip," is frequently the indication for opening the mastoid. Persistency of offensive discharge, and its appearance immediately after the middle ear has been cleansed, demonstrates the existence of a pocket of pus in the adjoining cavities. The surface temperature of the skin over the posterior wall of the meatus is a point of some diagnostic value in mastoid empyema. If disease exist, the temperature at this site is somewhat higher than at a corresponding area over the anterior wall.

In one hundred and fifty cases of mastoid operations analyzed by Milligan, ten (6⅔ per cent) were acute involvements and were accompanied by the usual symptoms. In these cases rapid healing followed the opening of the mastoid antrum, with recovery of hearing power. Out of the 150 cases operated upon, ten (6⅔ per cent) were subacute instances, without much local pain, with a copious discharge and progressive loss of hearing. The other case did not remain under observation. One hundred and two cases (68 per cent) were distinctly chronic in character. Stacke's modified operation was performed in the last series seventy-eight times. Out of this number, sixty-five resulted in complete recovery. All suppuration ceased, and the antrotympanic cavity became satisfactorily covered with skin. The hearing power was not improved by the operation.

This statistical report practically illustrates the position of radical treatment of chronic suppurative otitis. Clinical experience is the criterion upon which rational principles are founded. Conservatism is certainly a worthy quality, but when continuous treatment through the canal fails to accomplish a cure, we must unhesitatingly resort to more heroic methods.

Sinus thrombosis has received much attention during the past few years. Operations upon this channel are becoming more numerous and more successful. Timidity is gradually becoming a thing of the past, and free dissection of diseased areas is now boldly made. Whiting's practical observations upon this affection are valuable contributions. The aurist has to deal with the infectious thrombus, which is due to the presence of chronic suppurative ear disease. Many interesting remarks are made upon the pathology of the disease.

The diagnosis of an existing thrombus of the sigmoid sinus is not easily made. Pain, usually radiating from the ear and extending over the side of the head, with edema of the mastoid and occipital region, are significant local indications. Chills, high temperature, and malaise are systemic symptoms most commonly observed. Pulsation of the sinus has no diagnostic value.

In operating upon sinus cases it is considered best to uncover the sinus at the knee and descending portion. This may be done with the chisel and rongeur forceps. The mastoid antrum should always be opened, as infection spreads from this cavity. The hypodermic needle is of service in locating the thrombus.

Ligation of the jugular vein in these cases is an important element. Where the obstruction does not extend below the jugular bulb, we may not be called upon to tie the vessel. If, however, we are not successful in reestablishing the circulation from below the bulb, Whiting states that it is the operator's imperative duty to ligate the vein immediately. Where toxic symptoms are pronounced, or where metastases are already present, authorities agree that it is necessary to tie the vein as a preliminary step in opening the sinus. When the jugular has been ligated in two places the intervening portion should be resected, as the neck wound heals more rapidly and satisfactorily, and the liability of suppuration is much less. Statistics show that in sinus operations, where simultaneous ligation of the jugular has been performed, the percentage of recoveries is greater.

Labyrinthine deafness is still refractory to our present treatment. In some of these dubious cases pilocarpine and strychnine, together with applications of electricity, have given some improvement. Traumatic involvement of the inner ear is not as serious as a systemic invasion. Hypodermic medication is recommended in specific diseases of the internal ear.

THE PROGRESS OF RHINOLARYNGOLOGY.

The *Laryngoscope* for January, 1899, has in it an article by SCHEPPEGRELL, in which he makes an annual review of his subject. He tells us that a new remedy for acute coryza has been suggested by D'Aquitol, who recommends the application of leeches to the lower portion of the nasal septum. The possibility of sepsis in this application should, however, not be overlooked, this complication being demonstrated by the report of Lenzman, in which general sepsis followed a furuncle at the entrance of the nostril in a strong woman of thirty-six years, which proved fatal in five days. Staphylococci were found in the exudated fluid, but there was no pus.

The advocates for the operation of turbinectomy appear to have suffered a reaction during the past year, and comparatively little has been published on this subject. The operation deserves a well-earned rest. Greville Macdonald has published some further investigations on the importance of the turbinated bodies in the respiratory tract, and

calls attention to the embarrassment of this process after turbinectomy.

In addition to the usual number of reports of foreign bodies in the nasal cavities, several additional cases of the Texas screw-worm have been published, one case described by C. M. Robertson being followed by a fatal result. Cases of occlusion of the choanæ are reported by J. P. Clark and Gradenigo, the former describing a complete congenital occlusion, and the latter an occlusion of the right choana.

There has been considerable literature on the subject of the correction of deformed nasal septa, without, however, adding much to our former stock of information. The advantages of a submucous operation have again been brought forward by De Blois, who claims that it obviates the danger of making a perforation, heals more quickly than the ordinary operation, and is not followed by cicatricial tissue, which forms a lodging place for crusts of dry mucus. Quite a simple method for resecting the nasal septum without perforation is recommended by Escat. It consists of injecting four minims of boiling water by means of a hypodermic syringe into the mucous membrane of the concave side, thus stripping this from the cartilage. The convex side is then resected with a bistoury in a vertical direction. After cicatrization the closure is insured by the approximation of the uninjured mucous membrane to the cicatricial membrane.

Gelatin, which has recently come into favor as a hemostatic in general medicine and surgery, has been recommended in epistaxis by Carnot, who advises it especially in bleeders; he also advocates its use after tonsillotomy. It is applied by means of a syringe or a piece of wool saturated with a five- to ten-per-cent gelatin solution in sterilized water. The addition of an antiseptic has been found not to interfere with the coagulative property of the solution.

Formaldehyde has been added to the list of therapeutic agents in ozena by G. L. Richards, who uses five to ten drops of a forty-per-cent solution in eight ounces of hot water. The electrolytic treatment of this disease continues to be recommended by Rethi and Scheppegrell. The subject of the treatment of ozena by antidiphtheritic serum has been again brought to the attention of the profession by Holger Mygind, who claims that the injection of antidiphtheritic serum in genuine cases of ozena is the most effective of all treatments hitherto known. He afterward, however, makes a somewhat contradictory statement when he says that the presence of toxins is of no importance, but that it is the serum alone which acts, as he has obtained equally good results from the injection of patients with the normal serum of horses.

The observation of Gouguenheim's cases at the Lariboisière Hospital indicated that some good results may be obtained from the use of the serum-therapy in ozena, and shows that any drawback of a serious character may be avoided by using small doses. The author admits, however, that while this is the most convenient method for combating the fetor, hopes of a definite cure should not be held out to the patient.

Regarding the etiology of inflammation of the accessory sinuses of the nose, Howard and Ingersoll have made a careful bacteriologic study, and have demonstrated that with a few exceptions (aspergilli and vermes), inflammation of these cavities is caused by microorganisms, the diplococcus lanceolatus, the pyogenic staphylococci and streptococci, the baccilli of the group of Friedlander's bacillus, the bacillus diphtheriæ, and the bacillus influenzæ being the most important. The bacillus of tuberculosis has also been observed, which shows the importance of making a bacteriologic examination. It is, however, not necessarily pathognomonic of a serious condition, as indicated by a case reported by Gaudier which was successfully treated by opening through the canine fossa, curetting and packing with iodoform gauze.

The influence of plugging the nasal fossæ in the etiology of inflammation of the maxillary antrum is shown by St. Hilaire, who reports two cases following this procedure. An interesting case is reported by Molinié, in which the secretion was of a distinct bluish color and was supposed to be due to the development of a pyogenic colony in the frontal sinus of the right side.

In the treatment of empyema of the maxillary antrum the operation of Luc has gained favor during the past year. Luc admits that he is not entitled to priority in this operation, as Scanes Spencer has already described such a procedure, in which the canine opening, however, is not closed at the end of the operation. Caldwell has described the same operation, but without giving details or cases.

In certain forms of headache, especially frontal, E. L. Vansant has found the forcible syringing of the accessory nasal sinuses with a stream of hot dry air a useful remedy. In

some instances the air is medicated, or nitrous oxide is employed.

In the treatment of empyema of the frontal sinus Bryan has somewhat modified the rules described in his original operation. In cases of extensive caries he admits the impossibility of procuring healing in less than from four to six weeks, and therefore advises drainage, for some time at least, through the external opening, instead of at once closing the external wound, as in his original operation. The Ogston-Luc method seems still to hold favor in empyema of the frontal sinus. The Cusber-Czerny operation has been somewhat modified by Barth, who splits the nasal bone and the nasal process of the frontal bone, and forms a wider communication between the nose and the frontal sinus by removing the ethmoidal cells. The wound is sutured after the thorough removal of the frontal sinus membrane, and gives a fairly good cosmetic result.

ALCOHOL AS AN ANTIDOTE FOR EXTERNAL CARBOLIC ACID POISONING.

In the *New York Medical Journal* of January 14, 1899, Dr. A. M. PHELPS tells us that Dr. Seneca D. Powell, of New York, has for a long time used in his clinics at the Post-Graduate Hospital an antidote that all have come to recognize as a specific. He alludes to alcohol, and it is not an unusual occurrence to see Dr. Powell, in the presence of the class, catch in his open hands a quantity of pure carbolic acid poured into them by a nurse from a bottle. In a few moments the Doctor puts his hands into a basin of pure alcohol, and no escharotic effect is observed whatever from the action of the carbolic acid upon the skin. Dr. Phelps says he was somewhat surprised when he first saw this experiment, but when he recognized the result he was convinced of the scientific fact. At the present time he is flushing out abscess cavities with pure carbolic acid and washing them out a few moments later with pure alcohol. In empyema Dr. Powell, after making a large opening in the chest wall, washes out the cavity with a ten-per-cent solution of carbolic acid, after which pure alcohol is used, and no bad effect has thus far been observed from this treatment. The cavity of the pleura is rendered aseptic. From personal observations and demonstrations in the use of pure carbolic acid followed by the use of alcohol, Dr. Phelps says he can state to the profession positively that we have in alcohol an absolutely safe and sure specific against the escharotic action of pure carbolic acid. And he believes that this fact should be given wide publication to the profession and even to the laity, because in cases of carbolic acid poisoning with homicidal intent, if immediately after the administration of the poison alcohol was thrown into the stomach of the individual, the poisonous effect of carbolic acid would be at once neutralized.

THE CLINICAL EFFECT OF THYROID EXTRACT UPON FIBROID TUMORS OF THE UTERUS.

The *Medical News* of January 14, 1899, contains an article by POLK upon this theme. In its course he tells us that the net result in each case in which he has tried this treatment has been improvement, the greatest existing in those who took the treatment longest. Its manifestations were: (*a*) control of the menstrual flow; (*b*) arrest of the growth and, in some cases, diminution of the size of the tumor and apparently softening of it; (*c*) disappearance of pain and diminution of tenderness in the growth, and also of the sense of abdominal and pelvic distention, increase of muscular and nervous energy; (*d*) betterment of general nutrition, manifested at first by slight loss and then by return of flesh; an improved state of the skin, hair, and nails, and the substitution of good color for the appearance of anemia. As might be inferred, the condition of the bowels was likewise improved, although, as we shall see later, this was counterbalanced in some cases by gastric disturbances. It must not be supposed, however, that this was the sole drawback. There were others, but none was insurmountable — all belonged to the state now designated "thyroidism," but were manifested in its milder form because of the close watch kept upon the remedy. In every instance tachycardia was the most common drawback; next, restlessness and sleeplessness, when the drug was taken at bedtime; and lastly, indigestion.

It is evident, then, that the remedy is efficacious, but when conceded a place it must be compared with those accepted and now in use. To this end Polk, therefore, submits the following observations: Ergot, with or without digitalis, has failed to arrest menorrhagia in about fifty per cent of his cases, and when successful it has been continued, as a rule, in the face of an impairment of digestion and bowel action, interference with the heart's action, and sometimes its use has been ac-

companied by a good deal of mental depression. Even though retarding growth for a time, it loses this action after a while. It aids in the expulsion of submucous fibroids and in the conversion of interstitial into subperitoneal and submucous growths. The general health is apt to deteriorate much in the prolonged use of this drug. The suspension of the ergot has been followed usually by relapse into a state about as unfavorable as when it was commenced. Electricity has given little satisfaction, except when used as a cauterant to the mucous membrane of the uterus, and this action has appeared to be in no way superior to the use of the curette, and is more dangerous. Curettage involves anesthesia and invasion of the uterine cavity —not once, but repeatedly in all cases. Ligation of the uterine arteries is an operation *sub judice*, his experience being against rather than in its favor. Removal of the ovaries is an operation which offers, perhaps, a better result than mere ligation of the uterine arteries, but it is an open question with many having a patient fitted for a laparotomy if total extirpation is not better. Myomectomy, either submucous or subperitoneal, and total extirpation are procedures which stand by themselves, facing no rivals in their appropriate fields, so no comparison with any medicinal or hygienic treatment can be instituted with them.

This, therefore, reduces the competitors of the thyroid treatment to the purely medicinal —such as ergot and digitalis—to electricity, and what may be called the palliative operations, such as curettage, ligation of the uterine arteries, and oophorectomy. Polk recognizes that it is premature to institute a comparison between this thyroid treatment and the so-called palliatives, yet he has ventured upon it for the sole reason that his individual experience has seemed to justify it. If, therefore, the thyroid treatment can be shown to possess the power to keep down the menorrhagia, metrorrhagia, and hydrorrhea of fibroids, if it can control their growth and annul the pain inherent to many of them, it is superior to any medicinal treatment now in vogue; is better than electricity, curettage, or ligation of the uterine arteries; is preferable to oophorectomy, and in all smaller tumors it should be carefully employed before myomectomy or total ablation is resorted to, excepting, of course, cases in which the growth is merely submucous or in which malignant or septic changes are suspected. All such cases, in common with the larger growths, come within the pale of myomectomy or total ablation, and, as already admitted, are outside the field of this comparison.

As to the possibility of an efficient combination of some one or more of these discredited agents or procedures with the thyroid treatment, Dr. Polk says it has appeared to him as probable that some cases might be best reached through some such combination —for instance, cases of excessive menorrhagia might do best with a preliminary destruction of the diseased mucous membrane with the curette, to be followed soon after by the thyroid treatment. Then, again, in combination with ergot, the two to be given simultaneously or successively as the symptoms suggest or warrant. The preliminary use of the curette appeals to one in the class of cases mentioned, but cannot be suggested as a routine measure for the reason that he has found it unnecessary in two of his cases. The combination treatment with ergot has seemed beneficial when it is well borne, three patients having been so treated. After the suspension of the thyroid, these patients were placed on ergot, and it appeared to him that the good effects of the thyroid were maintained the better. He had previously observed these patients about six months upon the thyroid alone, and subsequently made observations for the same period of this combined treatment. In two others similar observations were instituted with the combination of thyroid and electricity, but he cannot say that he is convinced of its efficiency. Polk wishes it to be understood that in using electricity he does not carry the pole beyond the cervical canal, his experience with its intra-uterine application, except under anesthesia, having shown that an intra-uterine septic inflammation was apt to be set up, an accident only too sure to occur in the absence of the kind of antiseptic technique which is necessary and possible only under anesthesia.

Dr. Polk concludes his paper by saying that as yet he has not been able to determine which of the two classes of fibroids is most amenable to the thyroid treatment, but he inclines to the belief that the nearer the growth approaches the type of the pure myoma, as distinct from the fibromyoma, the better the ultimate result with the treatment. The bleeding, however, is more quickly controlled in the fibromyomata. This much one would infer from the comparative bloodlessness of this type; and yet, while leaning toward favorable conclusions, we must not

forget that the effect of the long-continued use of this remedy in these cases is undetermined. We know of the more acute effects, viz., the headaches, tremors, gouty and rheumatic pains, general debility, persistent vomiting, and profuse diarrhea; the tachycardia with its dyspnea, perhaps even fatal, we know of, but we do not know how easily these symptoms are controlled by regulating the dosage or stopping the remedy. But have we information of some possible general degenerative change in consequence of prolonged use? For answer we are forced to consult myxedemas, for they are the only cases which, so far, have been long exposed to the drug. It is true that here we have a disease clearly due to a thyrosis, and in giving the drug we merely return that which Nature requires, so it is fair to assume that nothing but good can come to myxedema from proper dosage with the thyroid. But so far as fibroids are concerned we must remain in uncertainty upon this point until the condition of the thyroid gland and secretion can be determined. Until such information is forthcoming we must get our encouragement from analogy. Both diseases are common to women and common at about the same period, both are characterized largely by an increase of the connective tissue elements, and both are prone to uterine bleedings. This similarity is too general to be more than suggestive, particularly when it is offset by the dominating influence of the ovary whose removal generally determines the subsidence of fibrouterine disease. But in the absence of any contraindication the analogy may be taken as a justification for the prolonged use of thyroid extract in this disease, with the proviso that we be alert, be keenly inquisitive as to the state of the circulatory, renal, nervous, and digestive systems, stopping or curtailing treatment as warnings arise.

It may not be out of place to suggest a minimum meat diet for these patients, and to advise rest—rest even in bed when the tachycardia is too persistent and troublesome—or a change of preparation, as some have more of this poisonous action than others, probably due to impurities, such as ptomaines, leucomaines, or the substitution now and then of iodothyrine, using the two alternately.

THE TREATMENT OF ACUTE LOBAR PNEUMONIA.

The *Medical News* of January 7, 1899, contains an article by MANGES upon this topic. He points out that the objects sought by the physician are to maintain life, to support the heart, to control fever, allay suffering, and lastly treat complications.

The maintaining of life includes the nursing and diet, which are too familiar to require any details. Dr. Manges says, however, he wishes to emphasize the importance of watching the stomach, for not enough attention is paid to ascertain whether it be unduly distended with gas or improperly digested food; even liquids may be improperly disposed of by the stomach. Routine percussion of the stomach is far more important than routine examination of the lungs. The heart must be spared in every way; let its burdens not be unnecessarily increased by upward displacement from the unduly distended stomach and intestines. All articles of diet which may produce flatulence must be rigidly excluded, and the milk must be adapted to the patient both in quantity and in preparation. Do not overfeed these patients; the disease is a very short one, and the patient's surplus fat and tissues will supply any deficit in the diet. Spare the stomach from undue medication as much as possible, and use the hypodermic method in preference. Give water freely, either cold, hot, or carbonated (unless the patient is cyanotic), for it allays the thirst, reduces the fever, and increases the elimination of toxins by promoting free diuresis. For the latter purpose the combination of a light Moselle wine with an alkaline mineral water is exceedingly useful.

As well described by Douglas Powell, the heart dangers are three in number: (*a*) Impaired nerve power on the part of the pneumogastric branches of the cardiac plexus; (*b*) impaired nutrition of the hard-working heart muscle from insufficient or badly aerated blood-supply; (*c*) mechanical tendency to overdistention of the right cavities and to depletion of the left cavities of blood.

The drugs which best meet these indications are strychnine, caffeine, and nitroglycerin. Strychnine and nitroglycerin are best given in reliable tablets, the caffeine in solutions of the benzoate or salicylate. If the results are not promptly obtained the drugs should all be administered hypodermically. Nor should we hesitate to use them freely, for the action of each is clean-cut, and any overdosage can be recognized very readily. His own experience has convinced him of the value of large doses of strychnine, to which Roosevelt called attention, in tiding a

heart through the crisis. For the same purpose we may also resort to the hypodermic injection of camphor in sweet almond oil. Osler also reports good results from hypodermoclysis. A struggling heart is often aided by an ice-bag over the precordium.

Van Santvoord has very recently published an interesting paper which throws an entirely different light on the subject of heart failure in pneumonia. His views are based upon the important experiments of Romberg, which proved that the cardiac weakness in pneumococcus toxemia is due mainly to a vasomotor paralysis, it being clearly demonstrated that arterial pressure is low as the result of relaxation of the peripheral blood-vessels. This is entirely opposed to the prevailing view that the characteristic pulse in pneumonia is one of high tension. If subsequent observations prove the correctness of these views, we should be cautious in the use of nitroglycerin for obvious reasons, and should restrict its use to the temporary relief of embarrassment of the right heart.

These experiments may also clear up the question of the use of digitalis in pneumonia, about which so much bitter discussion has been waged. The extreme views of Petresco have not found favor. In answer to the low mortality of 2.06 per cent reported by him and his school in 825 cases (Dr. Manges believes most of these cases were in soldiers, his statistics being those of the military hospital at Bucharest), he says he may cite the extremely low mortality of 3.6 per cent in 40,000 German soldiers. Petresco has certainly demonstrated that the danger from these colossal doses of digitalis (12 grammes, or 180 grains, daily) is small, but according to Reiner they must not be continued more than two days at the utmost. Another explanation of the tolerance for these large doses may be found in the experiments of Brunton and Cash, which clearly show that the action of digitalis is lessened in febrile conditions. A safe guide for the use of this drug is that given by Von Juergensen: "Digitalis is indicated as soon as the pulse rises in frequency, and at the same time becomes irregular without any demonstrable cause, in patients whose hearts were weak before the attack, or in patients whose hearts have weakened during the course of the disease. The fulness or emptiness of the pulse is important in determining this; if it is still full we can afford to wait a little, especially toward the end of the disease, when not infrequently one of the indications of an impending favorable turn is slight irregularity of the pulse."

In considering the control of the fever it should always be borne in mind that temperatures ranging up to 104° F. are as normal a feature of pneumonia as dyspnea and rusty sputum. The view which is now generally accepted is that fevers up to this point are the normal reaction of the organism to the invading pneumococci. That these "normal" fevers are even of service to the patient is well shown in a table published by Douglas Powell, in which he demonstrates that pneumococci grow to perfection at 35° to 37° C. (95° to 98.6° F.), and not at all at 40° to 42° C. (104° to 107.6° F.). He also directs attention to the value of the leucocytosis of fever in removing torpid or inert cocci. But, as in all symptoms of pneumonia, we must individualize, for in some patients a fever of 102° F. may inflict more damage than 105° may in others. The thermometer, then, is not the only gauge as to the question of the fever being unduly high; the true guide is the patient's general condition.

The use of large, flat ice-bags is the most convenient method for the reduction of undue fever, two or three being applied to the affected area. They are usually well borne and add not a little to the patient's comfort. The ice-bag, however, is no specific against pneumonia, as Mays would have us believe. Occasionally the prolonged use of ice-bags causes intercostal neuritis, as the author has observed in two cases. When the nervous symptoms are very pronounced we should not hesitate to resort to cold baths, using them in the same way and on the same general principles as in typhoid fever. If less heroic measures be preferred, prolonged immersion in lukewarm baths (90° F.) may be used instead. The contraindications to cold baths are very extensive consolidation of the lungs, marked adynamia, very rapid breathing, feeble heart action, and arteriosclerosis. Cold sponging and cold packs are often useful. Baruch recommends moist compresses which envelop the entire chest; their antipyretic effect is not very marked, and extensive furunculosis (due to the staphylococcus aureus) was noted in two cases at the Mount Sinai Hospital. The large doses of quinine which formerly found so much favor are now seldom employed. The routine use of the coal-tar products is now, fortunately, discarded; the occasional use of them in small doses is not objectionable.

The most striking indication under the

head of relieving suffering is the relief of the pleuritic stitches and the distressing coughs, which wear out the patients and rob them of their much-needed sleep. These are best relieved by the hypodermic injection of morphine, which may be resorted to as soon as possible without unnecessarily weakening the patient by temporizing with other means. The Paquelin cautery often acts magically in quieting pleuritic irritation; no one who has ever used it will temporize with sinapisms, blisters, leeches, poultices, etc. The ice-bag is also very valuable, but does not act as promptly as either of the above. Quite recently Manges has been using a new drug, heroin (diacetic-acid-ester of morphine), as a sedative for these thoracic symptoms, and so far as his present experience will allow him to judge, he believes that this drug will be found to be a valuable aid in quieting distressing coughs. It has acted well in some cases which were not relieved by codeine. It is given in tablet triturates or powders, in doses of one-twelfth to one-sixth of a grain every four hours.

Sleep is an imperative necessity for the overworked patient with pneumonia; to secure it is one of the most imperative indications in the treatment. The nervous exhaustion of which it is often the first herald may be prevented by the timely use of hypnotics. Of these morphine and chloral are the best. Chloral, when combined with a cardiac tonic, is perfectly safe. Balfour, the veteran clinician of Edinburgh, is most enthusiastic in his praise of it. We may also resort to cold packs or alcohol.

Of the value of oxygen in the relief of dyspnea and cyanosis it is difficult to give a final judgment. The opinion is slowly but surely gaining ground among the great clinicians that oxygen has been much overrated in the treatment of pneumonia. Theoretically its employment seems to be so well founded and its application is so simple, the apparent relief so striking, that the universality of its use is not at all strange. But does it really do any good in those cases in which we want its effects most? The primary effects soon wear off in serious cases, and the dyspnea and cyanosis increase in spite of its free use. Let the enthusiast for oxygen remember that the lung is just as consolidated immediately after the crisis as it was before it, and yet what a change there is in the patient's breathing. This proves that the dyspnea is not entirely mechanical in origin as is generally thought, but is mainly the result of the pneumococcus toxemia. In tiding the patient over sudden attacks of dyspnea and cyanosis oxygen is most useful.

Of the complications the most important are pleurisy with effusion, empyema, pericarditis, and endocarditis. The treatment of these conditions in pneumonia differs in no wise from that ordinarily pursued, and hence requires no special discussion. However, it may be added that effusions into the chest, either serous or purulent, ought to be removed as soon as the amount of fluid becomes large enough to interfere with the lung in any way.

BICHROMATE OF POTASSIUM IN THE TREATMENT OF CHRONIC GASTRIC ULCER.

Dr. T. McHardy, in the *Scottish Medical and Surgical Journal* for December, 1898, refers to the researches of Professor Fraser, of Edinburgh, on the value of bichromate of potassium in chronic gastric disease, and records the case of a woman under his care who had suffered from chronic gastric ulcer for twenty years. She had been bedridden for a year; the stomach was very irritable, rebelling on the most trifling indiscretion in diet. Epigastric pain was so severe as to demand constant recourse to morphine. Vomiting and hematemesis accompanied all ingestion of food, and nutrition had to be accomplished *per anum*. Anemia and emaciation were marked; there was anxiety, with quick, weak, and irregular pulse, and dry coated tongue. Flatulence and constipation, with dry, hard stools of a very dark color, often containing bloody mucus, were present. The abdomen was tense and distended, the stomach dilated and very tender on pressure, and a distinct peristaltic action could be felt extending from the fundus to the pylorus.

Pain was referred to two circumscribed spots, each about the size of a dime, lying over the smaller curvature, and often shooting through to the back, especially to the left of the last dorsal vertebra. Occasionally pain became more widely distributed, and when flatulence was severe it extended into the scapular and clavicular regions. As food had been withheld for some days, the vomited matter contained only blood and mucus, which threw out a sour, disagreeable odor, and gave a strongly acid reaction.

To get rid of the mucus, and render the stomach as empty as possible, McHardy first washed it out with a weak solution of boric acid. This had the direct effect of increas-

ing the hemorrhage, and after a subcutaneous injection of ergotin, and the application of an ice-bag to the epigastrium, this symptom quickly subsided. On May 14, 1897, he first administered a sixteenth of a grain of bichromate of potassium, dissolved in an ounce of distilled water. This was immediately followed by such violent pain and sickness that he was compelled to give an injection of morphine. After six hours the bichromate was resumed, and on this occasion he observed a decided improvement in the consequent pain and sickness, and although these unpleasant consequences continued to follow each successive dose for a time, still he noted a gradual abatement in their duration and intensity up to the fifth day, when the pain completely ceased. The sickness, however, persisted during the following week, but in a greatly modified degree. On the 18th of May the dose was increased to a twelfth of a grain, and administered every sixth hour as formerly. This was continued up to June 8, by which date the entire group of gastric symptoms had entirely subsided.

As it was now evident that the anemia had in no way benefited by the treatment, carbonate of iron and a solution of red marrow were substituted for the potassium salt. Under this the anemia rapidly disappeared, and after being continued for a month the only remaining symptom was constipation. As the stomach at first rejected every form of nourishment given, feeding by nutrient enemata was maintained for a week. She was then allowed a tablespoonful of milk and lime-water, repeated every half-hour. After some days milk-arrowroot, yolk of egg, and bread pap were cautiously added to the dietary, and at the end of six weeks she was permitted to share the common food of the family. On visiting her on the 12th of February last the author found her in excellent health and spirits. Her gastric troubles, with the exception of a mild form of indigestion, had never recurred. Her bodily weight had increased three stone, and she could discharge with comfort her usual household duties.

The author calls attention to the fact that vomiting, which previously had been a most distressing symptom, ceased after the first dose of bichromate. This result he has experienced in other cases, and in a recent case of chronic gastritis with persistent vomiting, which had defied several different forms of treatment, its administration was attended by the happiest results.—*New York Medical Journal*, Jan. 7, 1899.

REPORT OF EIGHT CASES OF PENETRATING GUNSHOT WOUNDS OF THE ABDOMEN, WITH INJURY TO THE HOLLOW VISCERA.

WINSLOW (*Annals of Surgery*, October, 1898) reports a number of interesting cases. In the first a patient aged sixty years was shot with a pistol. The ball entered the abdominal wall about four inches to the inner side of the right anterior superior spine of the ilium, and about the same distance above Poupart's ligament, passing through the ileum; it could be felt under the integument of the right buttock. He was seen eighteen hours after he was shot. Some fecal and foreign bodies and adherent blood-clots were found in the peritoneal cavity. The small intestine was penetrated in four places, in the neighborhood of the ileocæcal valve, three of the wounds being close together, whilst the fourth and largest was an inch in length and situated about ten or twelve inches from the others. Two of the wounds were separated from each other by only a narrow bridge of intestinal wall. Three were small, and required from four to six Lembert sutures for their closure, whilst the fourth, which was large, nearly horizontal in direction, and with widely everted edges, was sutured with ten or twelve Lembert sutures, the line of suturing being transverse to the long axis of the bowel, in order to avoid an undue narrowing of the gut at that point. As there was some bleeding from behind the peritoneum, the parietal incision was not sutured, but was packed with gauze. The patient was somewhat shocked by the operation, but rallied promptly. He was sustained with nutritive enemata for several days, and at the expiration of five days began to take small quantities of milk by the mouth. The gauze packing was removed on the sixth day and the incision was closed with buried sutures; union promptly occurred. A week later there was an elevation of temperature, and an induration was found in the right iliac fossa. The induration was incised, some pus escaped, and a free hemorrhage occurred. As the vessel could not be ligated, the wound was packed. Five days later a pulsating lump was discovered in the right iliac fossa. The patient was again anesthetized, a free incision made along and above Poupart's ligament, the deep circumflex artery was exposed and ligated, and a mass of decomposing clots was removed from behind the peritoneum. From this time the patient made an uneventful recovery. In this case

a median laparotomy was not done, as it was known that the bullet only traversed the right side of the abdomen, and could be felt under the integument of the right buttock, from which position it was incised some days later. The ball had cut the deep circumflex iliac artery and then passed through the ilium. The patient is still living in good health.

The second case was fifty-eight years old. He was struck by a buckshot in the left side, just below the apex of the heart. Examination with a probe showed that the wound led into the peritoneal cavity, and shortly afterwards blood was vomited in clots, showing an injury to the stomach. A perforation was found in the anterior wall of the stomach, from which gas escaped, but no extravasation of the contents had occurred. The opening was closed with Lembert sutures, and, after removing the discolored edges of the bullet track with scissors, the external incision was sutured. No other perforation of the stomach could be found, and it is uncertain what became of the bullet, as it was never found in the feces. He was kept in bed, absolutely quiet, and no food given for several days. A severe bronchitis set in on the fourth day, but this was of short duration. The external wound suppurated, but as the peritoneum had been sutured separately, the abdominal cavity was not invaded. The patient recovered.

The third case, aged twenty-five years, was shot in the left side of the abdomen, about four inches above Poupart's ligament, and two inches from the median line. Two hours after the infliction of the wound a median laparotomy was performed, the incision extending from the umbilicus to the pubes. At this time the patient was in good condition, no shock having occurred. Five perforations of the ileum were found and three of the mesentery. There had been but little hemorrage, and no escape of intestinal contents. The five intestinal perforations were closed, and what was supposed to be a careful search of the intestines for other perforations was made. The abdominal cavity was flushed with warm sterilized water, and the external incision closed without drainage. The patient collapsed under the operation, and it became necessary to complete the toilet with less care than would otherwise have been taken. Death took place on the fourth day after operation. An autopsy revealed a general peritonitis and an undiscovered perforation in the angle of junction of the ileum with the cæcum. The bullet was found in the cæcum. The other intestinal wounds had healed firmly.

The fourth case, aged sixty-six, was shot about 8 A.M., and was admitted to the hospital within an hour. He had received a bullet in his abdomen on the right side, and median laparotomy was done as soon as he could be prepared for operation, about two hours after he was shot. Seven holes in the small intestine were sutured, and a search not revealing any further wounds, the abdomen was closed. He was not at all shocked by the operation, and seemed to be in a favorable condition. Vomiting of blood soon set in, and he died with symptoms of peritonitis in twenty-four hours. The coroner's inquest revealed an additional wound in the sigmoid flexure; the No. 38 ball lodged in the left side of the sacrum. The bullet had traversed the abdomen from the right side to the left.

The fifth case, aged twelve years, was shot with a 22 pistol at 5 P.M., and was admitted to the hospital about five hours later. The bullet entered the abdomen slightly to the right of the middle line and about midway between the ensiform cartilage and the umbilicus. Laparotomy was done about 11.30 P.M., the incision, four inches in length, passing through the bullet wound and extending to the level of the navel. Upon opening the abdomen a considerable quantity of blood-clots was found, and upon removing these it was seen that the missile had passed through the thin edge of the right lobe of the liver, making a track about one inch in depth through this organ; it then traversed the transverse mesocolon, and wounded the jejunum in five places. The intestinal wounds were ragged, with everted edges, and liquid feces escaped from the openings. From four to six Lembert sutures, of silk, were required for the closure of each wound, the suturing being transverse to the long diameter of the intestinal canal, in order to prevent any contraction of its lumen. The intestines were cleansed and gauze was packed around the wounds in the liver, and strips allowed to project from the external wound, which was sutured. He was allowed soft toast, eggs, and mashed potatoes in about three weeks, and returned to a normal diet within a month. This patient had been wounded six hours before the laparotomy was done. The bullet was not found, nor, so far as is known, did it pass per rectum.

The sixth case, aged forty-four years, was

shot about 3 P.M., and admitted to the hospital one hour later. The bullet entered the abdomen about one inch to the right of the middle line, and one inch below the navel. Laparotomy was performed at 5 P.M. The incision passed through the track of the bullet, and revealed six ragged holes in the small intestine, and one through the great omentum. All bleeding vessels were ligated, and the wounds in the intestine were closed with rectangular Lembert sutures (mattress sutures), the line of sutures being placed transversely to the long axis of the intestine, in order to prevent any narrowing of its lumen. This operation, like most of those performed for similar injuries, was done by an artificial light. He was not materially shocked by the injury or operation, and was put to bed in fairly good condition. Strained soup was given at the expiration of a week. In about one month he was permitted to return to an ordinary diet.

The seventh case, aged twenty-three years, was shot at 11 P.M., and was admitted to the hospital ten hours later. The bullet entered the right side of the abdomen, about the tip of the eleventh costal cartilage, and an incision was made in the right linea semilunaris, eventually extending from the costal arch to the pelvis. Operation was done eleven hours from the time of injury. He had vomited the contents of the stomach, but without any admixture of blood. Upon opening the peritoneal cavity it was found filled with dark blood, bile, and intestinal fluids, which had gravitated even into the pelvis. The bullet passed between the liver and stomach, and opened the first portion of the duodenum, making a ragged wound about an inch in length, from which blood, bile, and fluids exuded freely. This opening was closed with considerable difficulty, on account of its inaccessibility, but finally a double row of Lembert sutures was placed, each row consisting of about ten stitches. The peritoneal cavity was flushed with hot sterile water and carefully mopped out, and a large glass drainage tube placed between the stomach and liver, and another in the pelvis, and the parts packed with sterile gauze. The lower part of the wound was sutured, and the upper part left entirely open, with gauze sticking out, as it was not thought that recovery would occur if free drainage was not provided. This patient suffered little or no pain, and for a man desperately wounded made an absolutely uneventful recovery. The bullet, a No. 38, was passed per rectum on the sixteenth day. Why the bullet did not pass entirely through the duodenum is a mystery, but in order to be sure that it had not done so the greater and lesser omenta were torn through and the posterior surface of the stomach and duodenum examined.

The eighth case, aged twenty-seven years, was shot in the left side of the abdomen, the bullet entering about two inches below and to the left of the umbilicus. Laparotomy was done about two hours after injury, the incision being placed in the median line. There was considerable bleeding, which was controlled by ligating the lacerated mesenteric vessels. The injuries sustained were three holes in the mesentery and five perforations of the small intestine. These were accurately closed, and the abdominal cavity cleansed. The patient took the anesthetic very badly, and the operation had to be completed in haste. He reacted, however, but complained of much pain, and vomited frequently. His temperature fell and his pulse increased in frequency, death occurring on the third day. Autopsy showed the stitches intact, some plastic peritonitis, but no purulent infection. No perforations were overlooked, and he appeared to have died of acute sepsis.

THE OPERATIVE TREATMENT OF HEMORRHAGE FOLLOWING CONTUSION OF THE KIDNEY.

NASA (*Berliner Klinische Wochenschrift*, No. 34, 1898) was compelled to extirpate an injured kidney because of the profuse bleeding from it incident to traumatism. He classes the cases of kidney lesions with hemorrhages as follows:

1. Those in which there is a discharge of a large quantity of blood, the forerunner of a fatal collapse.

2. Those in which the bleeding is long continued and persistent, threatening death from anemia.

3. Those in which the primary bleeding shortly stops, but is later followed by a sudden severe hemorrhage, probably due to the bursting of a traumatic aneurism. In this latter class are not to be included those cases in which there is a sudden evacuation of discolored urine which has for a time remained encysted.

Cases belonging to the first and third groups should be subjected to immediate operation, especially when there is reason to believe that hemorrhage is taking place into the peritoneal cavity.

In the second group the surgeon must be guided by indications. At times hemorrhage may be stopped by ligature or packing. When the kidney is greatly damaged, resection or extirpation should be practiced at once. This operation is always indicated when the renal artery is torn. The best incision is the oblique one, running from the eleventh rib downward and forward to Poupart's ligament.

COXA VARA.

FABRIKANT (*Revue de Chirurgie*, Nov. 10, 1898), who has contributed a very complete article upon the subject of incurvation of the neck of the femur—the so-called coxa vara—states that there is little difficulty in diagnosing this condition, since the symptoms are sufficiently characteristic. The symptoms are:

1. Shortening, measured from the anterior superior iliac spine to the external malleolus.
2. Absence of shortening, measured from the tip of the trochanter major to the external malleolus.
3. Upward displacement of the trochanter major together with projection.
4. Slight limitation of abduction and inward rotation.
5. Absence of pain on passive movement.

To these symptoms may be added limping, occasional pains radiating to the knee-joint, and a tendency to become easily fatigued by walking. Distinction may be made between this affection and coxitis, by the absence of inflammatory symptoms. An upward displacement of the trochanter, due to an old fracture of the neck of the femur, might lead to confusion, but in this case there would be a deposit of callus and a history of trauma.

The prognosis of the affection must be guarded as to restoration of the normal condition. During the early stages orthopedic treatment often produces great amelioration or even apparent cure. Absence of treatment at this time may lead to great crippling, as shown by a case described by Schultz. A child three years old attracted surgical attention by a limp, which increased. She had no pain, and seemed well in every other way. She simply experienced a sense of fatigue in the hip-joint, so that walking was tiresome. She was not, however, confined to her bed. Shortening of the leg was discovered by the doctors, but no therapeutic means were taken to prevent its increase. The sole of the shoe on the affected side was simply made thicker. As a result of this treatment, when the child was eleven years old, the leg was three inches shorter than its fellow; and because of functional disturbance the resection of the articulation became necessary. The orthopedic treatment consisted in massage and extension. Extension should be worn night and day. At night it is secured by plasters and weight; during the day by an extension splint.

When patients present themselves after the deformity is well marked an operation is often required. Hofmeister recommends subtrochanteric osteotomy.

ESOPHAGEAL STRICTURE.

KELYNACK and ANDERTON (*Medical Chronicle*, November, 1898) observed forty esophageal strictures in 4859 autopsies—that is, a percentage of 0.82 in all cases submitted to general pathological examination. Of these forty cases only six, or fifteen per cent, were of a simple or fibrous nature. The remainder were undoubtedly malignant. Of the thirty-four malignant cases a vast majority were in the male. As in the case of fibrous stricture there was an increasing frequency from above downward, twenty-five cases being observed in the middle and lower thirds of the gullet. Pulmonary congestion and edema occurred in about two-thirds of the total number of cases, and bronchopneumonia was present in nine cases. The average duration of the disease from its earliest symptoms to the final issue of the case, as reckoned from the history of twenty cases, was 7⅓ months. In only one instance did the course exceed thirteen months, and in only one was the course of less than three months' duration. There was a family history of malignant disease in but three cases, in five cases there was a history of excessive indulgence in alcohol and smoking, in four cases there had been exposure to the hardships of life.

GRIFFITH in the same journal describes a case of fusiform dilatation of the esophagus without organic stricture. He states that dilatation above the stricture of the esophagus is far from common, since food if unsuccessful in passing through the narrowing into the stomach does not accumulate above the obstruction, but is rejected shortly after being taken. He believes that in his case the condition was due to atony, and probably a congenitally narrowed cardiac orifice. The esophagus had evidently acted as a reservoir

and was thrown into folds; hence an attempt to diagnose the condition by the passing of a sound might readily lead to the faulty diagnosis of stricture. Auscultation of the esophagus might help in forming an opinion as to dilatation; since if a large amount of fluid can be apparently swallowed, and no gurgling, or only very feeble gurgling, can be heard to the left of the ninth or tenth dorsal vertebra behind, a condition of dilatation may be strongly suspected.

The cases recorded have been characterized by great chronicity.

In the treatment of the confirmed condition little can be done beyond advising the patient to eat slowly, to masticate thoroughly, and to take a small amount of food at a time, so as to avoid aggravating the condition by mechanical disturbance. If the oncome of the condition is suspected, as it may be if it follows a severe blow on the chest, temporary rest to the esophagus by rectal feeding, or by the use of the stomach-tube, may be advisable, followed by gentle galvanism and the observance of the above noted precautions in eating. Feeding by the stomach-tube should be employed in all cases where possible, in which the patient is manifestly losing ground, and in some cases gastrostomy might be required.

THE TREATMENT OF FAVUS.

PETERSON (*Archiv für Dermatol. u. Syph.*, 43 Bd., 44 H., 1898), after first softening the crust of favus by means of a one-per-cent carbolated vaselin ointment and washing it away by soap and water, paints the diseased area with tincture of iodine. It is not necessary to remove the hair.

THE ORIGIN, EFFECTS, AND TREATMENT OF SEPTIC INFECTION OF THE URINARY TRACT.

In a discussion upon this topic held at the annual meeting of the British Medical Association, NEWMAN (*Journal of Cutaneous and Genito-Urinary Diseases*, January, 1899) states that simple retention of urine does not give rise to septic inflammation; that small cultures of pyogenic microorganisms when introduced into the healthy bladder fail to produce sepsis; that if the mucous membrane of the bladder be injured prior to the introduction of microorganisms, sepsis immediately occurs; that if artificial retention of urine is induced from six to twenty hours after the introduction of the septic organisms into the bladder, suppurative infection of the mucous membrane follows. Serious injuries and diseases of the general and nervous systems at once decrease the natural resisting power of the bladder. Septic lesions of the kidney are induced by infarctions, arising from infective emboli, conveyed through the blood-streams from remote tissues or organs; invasion along the lymphatics of the urinary system; contagion along the lumina of the excretory ducts; septic contamination; contiguity of abdominal organs; or by wounds. When the infection is by the blood both kidneys are generally affected, and the abscesses are small and multiple, and on account of the arrangement of the blood-vessels are more abundant in the cortex.

By means of lymphatic vessels of the ureter a violent septic poisoning may be induced in the kidney without the mucous membrane of the ureter or pelvis being involved. Thus after an operation upon the urethra or bladder a violent rigor and suppression of urine may be followed by renal hematuria or by collapse, which may terminate fatally.

Rovsing, basing his opinion upon personal examination of about 200 cases, holds that two groups of bacteria will be found which govern the urinary region: (1) those which decompose the urea (staphylococcus pyogenes aureus and albus, proteus Hauser, various diplococci and staff bacteria, both pyogenic and non-pyogenic), and (2) those bacteria known under the name of coli bacilli. The reason for this is that the two main sources of infection are the urethra and the intestines.

Normally the urethra contains microbes which decompose the urea. Their number is greatly increased by inflammation. Coli bacilli swarm in the intestines. Infection is conveyed through the blood much more frequently than is generally supposed, especially from the intestines. Infection from the urethra most frequently takes place by the instruments carrying germs from the urethra into the bladder.

Infection may pass from the urethra to the bladder without instrumentation: (1) when there is a posterior urethritis with collection of pus behind a stricture, or when the mucous membrane is markedly inflamed; (2) in case of incontinence, when the sphincter fails as a carrier, the oozing stream forming a road of communication.

Next in frequency to infection of the urethra comes that from the blood, the intestines being

the most frequent source. Such spontaneous infection often appears in patients with symptoms of acute or chronic enteritis, especially colitis with chronic constipation. This form of invasion takes place most frequently in the kidney, because it is in this organ that the blood most frequently deposits microorganisms. Many of these cases commence with an acute but slight nephritis, and the inflammation in the majority is confined to the pelvis.

As opposed to Guyon, who believes that almost all infectious diseases of the urinary tract are due to the bacterium coli, and that the severest and most dangerous form of cystitis, the fatal ascending nephritis, and the violent cases of urine infection resembling septicemia, are due to that microbe, while the urea-decomposing microbes are of secondary importance, Rovsing believes the exact contrary. He particularly notes a difference between bacterium coli and the urea-decomposing microbes in calculous pyelitis. Under the actions of the latter the concretions grow rapidly from phosphatic deposit, while under the influence of the former they may often crumble rapidly—that is, bacteria coli may have a litholytic influence on calculi.

As to the prophylaxis of infection. Vaselin should be abandoned as a lubricant, since it is not washed away by irrigating fluids, and while adhering to the mucous membrane also imprisons the microbes. Rovsing advocates sterilized olive oil or glycerin. Steps should be taken to kill microbes which have been introduced, especially in cases of prolonged examination. This is best done after examination by injecting into the bladder through a catheter from four to six ounces of a two-per-cent solution of silver nitrate, which is allowed to remain for three or four minutes, after which the bladder is washed out with sterilized water. The first essential to effective therapy is the exact diagnosis of the seat of disease; especially should the differential diagnosis between cystitis and pyelitis be made. For a simple pyelitis four quarts of water is given a day, together with salol. Obstinate cases are put to bed, and a Pezzer catheter left *in situ*. This failing, exploratory lumbar incision is indicated.

Melichor states that bacterium coli is the most frequent cause of bacteriuria, and also produces acid urine; but this condition might also be caused by urea-decomposing microbes; that bacteriuria may be renal or vesical—in the latter case the prostate sometimes playing an important part as the focus of the infectious substance; that bacterium coli is the microbe most frequently found in cystitis, pyelitis, and suppurative pyelonephritis; that in a large proportion of cases cystitis is combined with acid urine.

THE TREATMENT OF CARIES OF SACRO-ILIAC SYNCHONDROSIS.

WOLFF (*Deutsche Zeitschrift für Chirurgie*, 49 Bd., 6 Heft, 1898) has never seen the synovial form of tuberculosis of the sacro-iliac synchondrosis, the disease always having appeared in the osteal form and usually accompanied by abscesses. The pus commonly forms a gluteal abscess, passing from the anterior surface of the synchondrosis through the larger ischiatic foramen, and sometimes attaining extraordinary dimensions, reaching from the crest of the ilium to the knee. The pus may also follow the course of the iliac muscle pointing in the groin, or may become apparent in the ischio-rectal foramen.

The diagnosis of the affection is sometimes extremely difficult, and in the absence of demonstrable pus for months may simulate neuralgia or neuritis. The affection usually begins with pains in the sacrum, often following slight trauma, such as a fall upon the feet, the lifting of a heavy weight, etc. It is probable that such forms of trauma are not causative, but simply render manifest latent processes. Frequently the patients remark, as a first symptom, that putting on their shoes and stockings is becoming progressively more difficult. The pain may increase in severity and become permanent, so that finally walking and even sitting are impossible. The cases characterized by pain are usually those in which the sacrum is distinctly involved. Usually the sacrum is much more extensively invaded than the ilium. When the sacrum is very widely infiltrated the prognosis should be extremely guarded, since a thorough removal of the diseased part almost necessarily implies opening of the dura and thus exposing the patient to dangers of septic meningitis. Moreover, it is difficult, under such circumstances, not to wound the rectal and vesical nerves, in which case there would be consequent incontinence, cystitis, pyelitis, and an ultimate fatal result, sequelæ which have occurred in three of the author's cases. Bilateral shooting pains should, therefore, put the surgeon on his guard as to promising too much from operation.

It must be remembered, however, that pain, either local or disseminated, is by no means an invariable symptom of caries of the synchondrosis. Cases sometimes come under observation exhibiting a large abscess unassociated with either pain or disability. An invariable symptom is, however, tenderness on pressure, often elicited by lateral compression of the two iliac bones. A more reliable means of eliciting this tenderness is by pressure made directly over the synchondrosis. The patient is placed in the ventral decubitus; this region, together with the surface of the sacrum, is palpated, and the examination is completed by rectal palpation. This last exploration, in non-suppurative forms of the disease, sometimes gives the only diagnostic sign. Pressure of the finger introduced into the rectum and directed toward the diseased synchondrosis is extremely painful, and usually discovers edema or swelling, the presence of which is determined by a comparison with the sound side. The presence of an abscess is of direct diagnostic importance only when associated with the signs and symptoms already mentioned; since caries of the spine, or practically of any part of the pelvic brim, may cause pus to appear in the gluteal region or in the other regions supposed to be characteristic of suppuration of the sacroiliac joint.

Caries of the sacroiliac synchondrosis is, if untreated, almost certainly fatal, usually from extensive suppuration and amyloid degeneration.

Rest and splinting are means to be employed when there is no abscess formation—that is, in about twenty per cent of the cases. When pus is formed, and in many of the cases treated by rest this will take place, operation is indicated, and this should be timely—*i.e.*, as soon as the diagnosis is positively established—in order to prevent extensive destruction of the sacrum, since this bone is quickly involved. The customary curetting and injection of iodoform are serviceable only in the milder cases—those in which the sharp spoon or the chisel has the good fortune to reach and remove isolated, sharply circumscribed areas of disease. For all well-advanced cases (and this includes those in which an abscess has formed on the inner surface of the sacrum) such operative interference is absolutely futile.

Bardenheuer advises an operation by which he cuts through the gluteal musculature, passes a chain-saw subperiosteally around the ilium, saws it through, tears this loosened posterior piece from its synchondrosis, and then attacks the sacrum with a chisel. Of twelve cases seven were cured; five died—one of shock, one of tuberculosis of the lungs, and three of sepsis. In all these three there were paralysis of the bladder and ascending infection due to cutting of the nerves.

The new method is based on that which Sprengel designed for caries of the pelvis. The incision begins in the middle of Poupart's ligament, runs in a curve outward over the crest of the ilium, then downward over the sacrum, a little to the inner side of the synchondrosis, and finally follows the course of the sacroischiatic ligament, ending over the tuber ischii. The incision goes directly down to the bone. The muscles of the anterior superior spine of the ilium are separated at their points of attachment, the external lip of the crest of the ilium is cut away from the bone with the resection knife, and the periosteum, together with the external lip, to which it remains attached, is stripped from the outer surface of the ilium. This stripping of the periosteum with the attached muscle is extremely important. A large musculoperiosteal flap is thus stripped down until the gluteal arteries and veins are reached at their points of exit from the ischiatic foramen. Here they are tied and cut through. The iliopsoas muscle is then freed from the inner surface of the ilium, together with the periosteum and the inner lip of the crest of the ilium; the Gigli saw is passed from the ischiatic foramen around the ilium, and this bone is sawed through. By the exerting of a moderate amount of force the posterior part of the ilium is torn loose from its articulation with the sacrum, and this bone is attacked with the chisel and is cut away until only the sound portions are left. The nerves passing through the sacral foramina should be spared. This end is attained by passing a probe in the foramen near which the surgeon is chiseling.

After complete removal of the diseased parts, hemorrhage is stopped and the wound is closed by two layers of sutures. The external lip of the iliac crest is united to the inner lip, after which the skin is sewed, and in the anterior and posterior angles there is inserted a glass drainage-tube. Finally, after the antiseptic dressing, a plaster bandage is applied, enclosing the trunk, from the lower border of the ribs, the thigh and leg of the resected side, and the thigh of the sound

side. Bleeding is very slight. Separation of the gluteal muscle flap is extremely easy when the operation is conducted subperiosteally. As to the permanent disability caused by this resection, extensive since the line of sawing runs from the middle of the ischiatic foramen to a point on the iliac crest just behind its anterior superior spinous process, Wolff states that reorganization of the bone is extremely rapid, and that a man on whom he operated thus in 1895 has been working at his trade as a baker for three years without experiencing any inconvenience.

THE VALUE OF X-RAYS IN SURGERY OF THE NOSE.

SPEISS (*Revue de Rhinologie, Otologie et Laryngologie*, No. 5, 1898) finds that the Roentgen rays afford a new means of obtaining evidence as to the existence and the dimensions of the sinuses of the head, and of the possibility of treating these sinuses by the endonasal route. The author has particularly concerned himself with opening the frontal sinus. Through the nose he drives an electrical trephine into the center of this sinus, controlling the direction which this instrument takes by the fluoroscope. Thus he is able to observe exactly the course of the instrument. The opening, having once been made, can be enlarged until complete drainage is provided for. Cure does not necessarily follow a simple opening. The latter operation must be considered as purely exploratory; the diagnosis having been thus made, it allows the surgeon to practice lavage. The *x*-rays may sometimes mislead in deciding as to whether or not there exists a frontal sinus, as may also transillumination. Tenderness on percussion over the frontal sinus and on pressure exerted upon the orbital roof at the inner angle of the eye are almost constant symptoms of sinusitis.

THE RADICAL TREATMENT OF HEMORRHOIDS.

SCHIFF (*Medical Record*, Dec. 31, 1898) describes an operation for the radical cure of hemorrhoids which in many cases possesses advantages over the operations usually performed. After having thoroughly stretched the sphincter, and plugged the bowel above with a pad of iodoform gauze, the mass or hemorrhoid is seized with a clamp and removed by an elliptical incision, cutting from the cutaneous surface inward and upward, thus leaving the vessels the last part to be severed. As soon as the vessels come into view they are grasped with an artery clamp, and the entire mass is separated from its connection with the bowel. The vessels are then ligated and the mucous membrane and cutaneous wounds are sutured. Usually these sutures are so inserted that the line of union shall be parallel with the bowel. In cases in which there might be a tendency to stricture, or in which the lower bowel is narrow, sutures are passed at right angles to the bowel, so that the cicatrix shall be parallel to the sphincter. In all cases the old rule of leaving mucous membrane between the mass removed must be adhered to. After completion of the suture the iodoform plug is withdrawn. Convalescence requires from three to five days, is unattended with severe pain, and the danger of secondary hemorrhage is minimized.

TUBERCULOSIS OF THE PAROTID GLAND.

PARENT (*Thèse de Paris*, 1898) concludes that tuberculosis of the parotid is commonest in the adult, that it is usually a purely local disease, and is as a rule unassociated with tuberculosis in any other part of the body. The affection begins very insidiously, the patient noticing, perhaps by accident, some swelling of the parotidal region. It is unattended with pain and grows very slowly. Exceptionally there is sharp pain about the ear and the orbit, and sometimes a facial palsy. The tumor is hard, at times softened in points, non-adherent. The clinical symptoms suggest tuberculous adenitis, gumma, actinomycosis, or neoplasms. The slow development suggests the diagnosis, which often can be confirmed only by microscopic examination. The sole treatment to be considered is extirpation of the tumor or ablation of the entire gland. The results of this treatment are excellent.

THE TREATMENT OF VESICAL HEMORRHAGE.

NOUGÉS (*Ann. des Malad. des Org. Génito-Urin.*, 1898, No. 8), in discussing the treatment of bleeding from vesical neoplasms, states that the rational and immediate indication is removal of the growth by operation. If, however, circumstances are such that this is impracticable, the bladder must be first freed of its clots either by a catheter of large

caliber or by incision and permanent drainage, after which a five-per-cent solution of gelatin in 7.10 sodium chloride is injected into the bladder and slowly withdrawn. At first it is injected in small quantities; later sufficient of it is forced in to fill without distending the bladder. The catheter is then taken out, and the injected gelatin salt solution is allowed to remain.

REESTABLISHING SURGICALLY THE INTERRUPTED PORTAL CIRCULATION IN CIRRHOSIS OF THE LIVER.

WIER (*Medical Record*, Feb. 4, 1898) had his attention first directed to the subject of reestablishing surgically the interrupted portal circulation by a communication of Drummond and Morrison, who stated that they had cured a case of ascites due to cirrhosis of the liver by simply bringing about adhesions between the omentum and parietal peritoneum, as well as between the upper surface of the right lobe of the liver and the diaphragm. The method in which they proceeded was as follows:

The abdomen was opened between the umbilicus and the pubis. The entire fluid was evacuated; the abdominal cavity was carefully dried with sponges and then scrubbed vigorously, as was also the parietal peritoneum. The peritoneal covering of the liver and of the spleen, and the portions of the parietal peritoneum opposed to them, were especially scrubbed. Finally the omentum was fastened by sutures across the anterior abdominal wall; then the wound was closed, save at one place, where a glass tube was introduced into the pouch of Douglas for drainage. In the one case there was no improvement, the patient perishing nineteen months later, after having been tapped sixty-nine times following operation. In the second case—a pronounced one—there was apparent return to perfect health.

Talma reported a case cured by three operations. The first was simply an exploratory incision followed by gaping of the wound for five days, with prolapse of the omentum, a part of which was cut off, the rest replaced, and the wound reunited. Six weeks later, in which time four paracenteses were made, a second laparotomy was done, and the omentum stitched in the wound. No further recurrence of ascites took place, but the enlargement of the spleen, which reached to the middle of Poupart's ligament, continued. A third laparotomy was accomplished, by which the lower end of the spleen was tucked in between the skin and the peritoneum to facilitate adhesions and venous intercommunications. One year later the patient was well, but the liver and spleen were both enlarged. The case was considered as a severe acute hemorrhagic Bright's kidney with a hepatic complication, which ended in an atrophic cirrhosis, with its usual obstruction of the portal vein.

Wier's case, one of cirrhosis from alcoholism, had been tapped several times at intervals of about a week, two or three gallons being removed from the abdominal cavity each time. He lost rapidly in weight. The liver and spleen were both large—the spleen twice its normal size. A four-inch incision was made over the upper third of the right rectus muscle; the anterior superior surface of the right lobe of the liver, the corresponding diaphragmatic part of the peritoneum, and the parietal peritoneum adjoining the wound, were freely scraped with the sharp point of a steel hat-pin, and the omentum was stitched on each side of the wound by six or eight catgut sutures, the wound being finally closed by buried layer sutures. Before this was done a smaller opening, one inch long, was made above the pubis, to admit a double perforated glass drainage-tube to the space behind the bladder, to which was subsequently attached a Cathcart's permanent siphon. Compression of the abdominal walls was accomplished by broad strips of adhesive plaster. The patient died five days later, from extensive peritonitis, probably caused by infection of the drainage-tube.

NARCOSIS BY ETHYL CHLORIDE.

LOTHEISEN (*Archiv für Klinische Chirurgie*, 57 Bd., 4 Heft) reports 170 cases of narcosis by ethyl chloride. The amount required for each narcosis varied between two and three drachms. There was a stage of excitement in thirteen per cent of the cases. Complete narcosis was developed very quickly and lasted for from five to ten minutes. There were no sequelæ of note, except that eighteen cases vomited. There were no accidents.

RADICAL CURE OF SARCOMA OF THE SPLEEN.

ASCH (*Centralblatt für Gynäkologie*, No. 52, 1898) states that in 1888 he made a collection of the cases of spleen extirpation, and could find but two in which the operation was per-

formed because of sarcoma. One operated upon by Billroth in 1884 died three months later of recurrence. The other was operated upon by Fritsch in 1889. This woman lived for six and a half years without any recurrence, and then died apparently of heart disease. In the last ten years the author has been able to find no further case of extirpation of sarcomatous spleen.

A SUBSTITUTE FOR THE MURPHY BUTTON.

GENELLA (*New York Medical Journal*, Jan. 7, 1899) offers as a substitute for Murphy's button an instrument that is easy to make, easy to apply, and easy to sterilize. The instrument is a two-bladed forceps, each blade ending in an incomplete ring. Both blades are of the same size and structure, except, as in other forceps, one is a female and the other a male blade, for disarticulation and sterilization. A number of forceps with rings of various sizes should be provided.

The *modus operandi* of the operation is as follows: The abdomen is opened as usual and the diseased or injured portion of the intestine is removed. A hole is then punctured, or a fifth-of-an-inch slit is cut, about a third of an inch from the cut margin of the gut, at a point opposite the mesenteric attachment. An ordinary aspirating needle is the best instrument to use. Holding the handle down the extremity of the incomplete circle of the male or female blade is then inserted into the hole, and by a circular motion, raising the handle up, the incomplete circular part of the forceps is placed inside the gut. The other blade is then inserted in the other gut in the same way. The ends of the gut are now invaginated each into the ring of the part of the forceps which it contains, and the blades are locked and clasped, care being taken not to clasp them too tight for fear of injuring the gut. Often the gut after being thus invaginated refuses so to remain long enough to allow the forceps to be locked, in which case two primary stitches of Monsel's are inserted. But instead of using his window, the stitches are threaded on a needle and passed through the fifth-of-an-inch puncture next to the handle of the male blade. The stitches are then pulled on and the gut ends invaginated until the blades are firmly locked; after which, by pulling on one end of the stitch, both can be removed, as they no longer serve a useful purpose. The forceps having been clamped a row of Lembert sutures secures the gut ends in proper apposition. The forceps are then unclasped until the gut is no longer held. The handle of each blade is then so manipulated that its ring is removed from the intestinal tract. The fenestra in the mesentery and the two little fifth-of-an-inch puncture holes are next carefully stitched up, leaving a simple anastomosis, with nothing foreign left in the intestines.

This operation is superior to Murphy's, since no irritating body is left in the intestinal tract. The instrument is simple and inexpensive, and can be easily sterilized. It is superior to Monsel's invagination, in substituting a fenestra a fifth of an inch in diameter for his fenestra of an inch or an inch and a half. And the Lembert sutures can be made firmer and more regular, without having the gut constantly slipping away.

This instrument is superior to La Place's modification of Murphy's procedure, being simpler and easier to clean. In all other points La Place's instrument is just as good. It is important not to pinch the gut, and not to open the blades too wide when removing the forceps. The cut in the mesentery should not be stitched until the forceps is removed.

A NEW METHOD OF DRESSING COLLES' FRACTURE.

BARNES (*Medical Record*, Jan. 21, 1899) states that after having used the classical pistol-shaped splints for some years, he was led to adopt the dressing about to be described, which, as far as he has been able to ascertain, is original. The dressing consists of a piece of rubber adhesive plaster, of the proper width and long enough to go a little more than one and one-half times around the wrist, and a piece of roller bandage three inches in width and about one-third of an inch in thickness when tightly rolled. The fracture having been properly reduced by extension from the hand and elbow, the surgeon cuts his plaster of the length already described, and of a width corresponding to that of the lower fragment. The piece of roller bandage is laid upon the palmar surface of the wrist at its ulnar side, extending from a point above and to the inner side of the styloid process of the ulna toward, and slightly pressing upon, the thumb at its inner aspect. The plaster is now firmly applied upon the dorsal surface of the lower fragment, carried firmly and tightly across the palmar surface of the wrist, and the roller bandage brought around the ulna to the dor-

sal surface of the wrist; and while the surgeon with his disengaged hand firmly and strongly supinates the upper fragment, the plaster is carried across this and again across the palmar surface of the wrist to the border of the ulna, when the excess of the plaster is to be cut away and the end firmly applied to the surface. A roller bandage smoothly applied completes the dressing, and the arm is to be placed in a sling. The patient can at any time move the thumb and fingers, and is encouraged to do so to a moderate extent as far as it can be done without causing pain or ache. The object of the piece of roller bandage is to keep the ulna in position and also to preserve the arched formation of the bones of the carpus.

In a series of twelve cases this method has given perfect results in every case. One of the greatest advantages is that the patient so soon recovers the use of the hand and arm when the dressings are removed. If the plaster should prove too tight the pressure may be relieved by cutting with a sharp scalpel a series of buttonholes in the plaster at the points of constriction. If the patient is inclined to *embonpoint*, the edges of the plaster may be lightly nicked by a pair of probe-pointed scissors. It is well to remove and reapply the plaster some time during the second or third week.

ORTHOFORM IN TOOTHACHE.

HILDBRANT (*Medical Press and Circular*, Dec. 21, 1898) asserts that orthoform immediately and completely relieves the severe pain due to inflammation of the pulp in a decayed tooth. To this end it is sufficient to introduce into the cavity of the tooth a plug of cotton steeped in an alcoholic solution of orthoform. Being absolutely deprived of any toxic properties orthoform constitutes in such cases a simple remedy, and one which can be applied by the patient himself without danger.

SUTURE OF THE ABDOMINAL PARIETES AND SCAR HERNIA.

ABEL (*Archiv für Klinische Chirurgie*, 56 Bd., 3 Heft) with most praiseworthy industry and perseverance has been able to follow the histories of 665 laparotomies performed in the Zweifel clinics; 586 of these patients he saw himself. As a result of this study he finds that the through-and-through method of sewing—*i.e.*, passing of one thread through the entire thickness of the abdominal walls—is followed by a large percentage of abdominal hernia. The best safeguards against the development of this sequel of abdominal operations are afforded by a careful adaptation of the anatomical structures which have been divided by means of buried sutures, the fascia suture being particularly important, and by the securing of union by first intention.

A CLINICAL STUDY OF WOUNDS OF THE SKULL AND THE BRAIN.

SCHLOFFER has contributed to the *Beiträge zur Klinischen Chirurgie* a number of interesting cases of injuries to the skull and the brain (abstract in the *Münchener Medicinische Wochenschrift*), dwelling particularly on the symptomatology and treatment. Among others, there was a case of gunshot wound of the brain, the missile passing obliquely through the cerebral substance, having been abstracted from the side opposite the wound of entrance. This case recovered, but afterward developed epileptic seizures. There was a case of gunshot wound in which the missile was not found; healing took place, and afterward an abscess formed. The patient perished through lobular pneumonia.

There was also a case of gunshot wound in which the missile, entering the mouth, penetrated into the posterior fossa of the skull, and was extracted from that region, after having been located by the *x*-rays. This operation was followed by recovery. In one case of prolapse of the brain, following extensive injury, a plate of celluloid was inserted, the wound healing over it.

Schloffer advocates trephining in cases of gunshot wound of the brain for the removal of splinters which have been driven in, for the purpose of rendering disinfection more effective, and especially to enable the surgeon to check arterial bleeding, and for the relief of pressure when it is denoted by contralateral contractures or palsy. As opposed to more conservative surgeons, he believes that the bullet should always be removed when it can be reached. This is especially urgent when from its position it causes irritation, as evidenced by peripheral symptoms.

SUTURE OF WOUNDS OF THE HEART.

GIORDANO (*Riforma Medica*, 1898, quoted by *Münchener Medicinische Wochenschrift*, Dec. 20, 1898) summarizes an article on this question by stating that the greatest speed

is required in the treatment of wounds of the heart; that the opening must be sufficiently large to bring the operative area completely under the surgeon's eye; and that since the operation is one of emergency it must usually be performed with but few assistants. The anterior and lateral surfaces of the heart can be reached from the anterior thoracic region, both left ventricle and auricle from the left side, the right auricle from the right side. For suturing a wound of the ventricle the resection of a single rib, the fourth or fifth, is sufficient. Resection of the sternum is never necessary. When the auricle is wounded it is usually necessary to resect the third and the fourth ribs; and if it is desirable to inspect the whole heart, the fifth also must be resected.

VAGINITIS IN CHILDREN.

The following formula is given in the *Revue de Chirurgie* of December 10, 1898:

Oil of eucalyptus, 12 grains;
White wax, 90 grains;
Cacao butter, 90 grains.
Make four suppositories.

LOCAL INFILTRATION ANALGESIA.

BARKER (*The Lancet*, Feb. 4, 1899), following Braun's teaching, employs as a local anesthetic a mixture made up of one part of eucaine, eight parts of sodium chloride, and 1000 parts of water.

This he suggests can be used in any amount without danger of poisoning, since the eucaine is only about one-fifth as toxic as cocaine, and is equally efficacious as a local anesthetic. Ten and a quarter ounces of this solution has been injected without ill effect.

In practice, the best way to employ this eucaine salt solution is to have powders made which can be boiled in the proper quantity of water at the time of operation. For injecting this solution, a syringe should be used which holds from one to three drachms, and which has an asbestos piston in a glass cylinder, so perfectly fitted that there is no leakage. To this syringe are fitted either fine needles for the skin, or coarser ones for the deeper parts, one of which is bent for use in cavities. The syringe is filled with the solution heated to a little above the body temperature, and the parts to be operated upon are thoroughly infiltrated, including, if necessary, not only the areolar tissues, but even the muscles and the periosteum. In about five or ten minutes the part thus injected will be in a state of analgesia.

The operation should not be conducted while the patient is fasting. A nutritious meal should be given shortly before. The patient is thus fortified against nervous shock, and, moreover, the sensibility of his skin is lessened. This latter effect is still more accentuated by administering alcohol.

As to the drawbacks of local infiltration analgesia, the consciousness of the patient is certainly one. Thus in people who are highly nervous, and in children, the method will have but a very limited application. Again, there is no motor paralysis. The author has performed under this form of analgesia, during the month of January, three radical cures of hernia, one of abdominal section for acute peritonitis, one wiring of the patella, and a number of other operations. The artificial edema certainly masks anatomical details, and finally the method is time-consuming. It must be remembered that at the best in extensive operations the method does not produce total anesthesia, but only analgesia.

LAPAROTOMY FOR CONTUSIONS OF THE ABDOMEN DUE TO THE KICK OF A HORSE.

POTHERAT (*Revue de Chirurgie*, Dec. 10, 1898) concludes that when a man is kicked in the stomach by a horse, especially when the injury occurs after a meal, immediate laparotomy should be performed, even though there are no symptoms of visceral lesion.

He bases this opinion on two cases. The first, immediately after having been kicked, vomited. When he was seen ten hours later his belly was slightly tympanitic, and he complained of severe pain at the umbilicus. The temperature and pulse were normal. The abdominal muscles were strongly contracted. Upon this point—*i.e.*, abdominal hardness—Potherat places weight. Hence he practiced section and found a small intestine torn. The patient did well until the fifth day, when he died of acute peritonitis. The autopsy showed an undiscovered lesion on the posterior surface of the third part of the duodenum.

The second patient was kicked, but did not even suffer severe pain. He was opened, and blood was found in the pelvis. Guided by this, a longitudinal rupture was discovered in the small intestine, involving the serous coats, but not passing completely through the mucous coat. The patient recovered.

Hartmann, in the discussion of these cases, held that abdominal rigidity, not limited to the seat of injury, should always be taken as an indication for immediate operation after an accident of the nature under discussion. He has been thus guided in seven cases, each time finding a lesion. In three others he abstained from operation. They all recovered.

Delorme waits for symptoms. In twelve cases he has intervened but once, and does not regret his conservatism. He has noted abdominal rigidity more or less transitory in the cases which recovered without intervention, and also noted that in the serious cases this contracture was often wanting.

Broca believes that waiting for symptoms may cause fatality. He was called to see one case kicked by a horse immediately after a meal. There were no suspicious symptoms, and the case was treated conservatively. The next day acute peritonitis developed, and laparotomy showed that the transverse colon was completely torn across. The patient died.

Nimier saw six cases kicked in the stomach by horses. All got well. Only one was sectioned. The spleen in this case was torn. Nimier waited for the first symptoms of peritoneal infection. These developed between the twelfth and twenty-fourth hour after the accident. Nimier believes that by thus waiting the results will be quite as good as among patients who are subjected to immediate exploratory laparotomy.

TREATMENT OF VENEREAL WARTS BY RESORCIN.

SILBERMINTZ (*Revue Pratique d'Obstétrique et de Gynécologie*, vol. xiv, No. 12) has found resorcin the most efficacious means in the treatment of the vegetations which so frequently develop about the genitalia.

If the vegetations be isolated, pediculated, and surrounded by healthy skin, the growths are covered by a paste made of resorcin mixed with water. This is covered in with a gauze compress, and the application is repeated daily until the vegetations dry and fall off.

In the case of multiple extensive sessile vegetations upon the glans, the prepuce, in the inguinal folds, or upon any of the region subject to these growths, the following preparation is applied:

Flexible collodion, 80 parts;
Resorcin, 20 parts.

Before applying this mixture the growths are dried with alcohol or ether, and not only the warts but the surrounding healthy surfaces are painted with the collodion. When the first coating becomes detached it carries with it the superficial layers of the papillomatous growth. Two or three applications are sufficient to accomplish a cure. There is left a worm-eaten granulating surface, the irregularities and indentations of which are due to the roots of the papillomatous growth. Cicatrization takes place rapidly under slightly astringent powders.

When the skin is dry and comparatively thick, as upon the outer surfaces of the labia majora, a preparation is used containing 50 parts of resorcin to 100 parts of collodion.

When the vegetations are seen at their very beginning, when they are as yet scarcely visible, the parts affected are dressed with compresses wet in a two-per-cent solution of resorcin. In two or three days the skin hypertrophies entirely disappear. In any case the parts affected are cleansed with boric acid solution and are dressed with small gauze compresses.

TREATMENT OF URETHRITIS BY METHYLENE BLUE.

YOUNG (*Toledo Medical and Surgical Reporter*, February, 1899) advocates the internal administration of methylene blue in the treatment of acute and chronic gonorrhea. He employs the following formula:

Methylene blue, 2 grains;
Oil of sandalwood, 3 grains;
Oil of resin of copaiba, 3 grains;
Oil of cinnamon, 1 drop.
Make into one capsule.

One such capsule is given thrice daily. In three or four hours after the first dose the urine is colored a brilliant blue. In addition to this pleasing effect, it is stated that the drug distinctly modifies the severity of the inflammatory symptoms.

THE TREATMENT OF CHANCROID BY ANTISTREPTOCOCCUS SERUM.

MOORE (*Klinische Therapeutische Wochenschrift*, No. 49, 1898) treated forty-eight cases of chancroid, complicated by bubo, with antistreptococcus serum, combined with the ordinary antiseptic local applications. Of these only seven suppurated. Five cubic centimeters of the serum was injected in both inguinal regions. When the inflammatory symptoms were not more than forty-eight hours old, an injection of ten cubic centi-

meters was usually sufficient to prevent suppuration. Often when this had occurred serum injections seemed to prevent its extension. In one case of phagedenic ulcer the serum showed not only decided antitoxic powers, since it markedly modified the general septic symptoms, but it also decidedly stimulated the local healing.

TREATMENT OF CARBUNCLES.

ROSENBAUM (*New York Medical Journal*, June 11, 1898) claims for the following method of treatment that it is painless, the healing is quicker, and no scar or cicatrix remains. A pad of eight layers of gauze somewhat larger than the inflamed surface is soaked in Thiersch's solution (acid salicyl. ʒ ss, acid bor. ʒ iiss, aq. Oij), covered with a layer of ten-per-cent ichthyol ointment, applied to the carbuncle, and held in place by rubber protective, cotton-wool, and a bandage. This dressing is left for two days, after which the cores are found to have separated from their walls. They can be painlessly removed at the next dressing.

CHOICE OF METHODS IN HYSTERECTOMY.

CUSHING (*Annals of Gynecology and Pediatry*, October, 1898) considers the following methods of hysterectomy, each of which is or may be preferable in certain cases, so that it is of interest and importance to examine the indications which would cause either one or the other to be chosen in a given case:

1. Suprapubic amputation: (*a*) Extraperitoneal; (*b*) infraperitoneal (cervix cauterized and drained; cervix closed without cautery).

2. Total extirpation: (*a*) Abdominal—vagina open (peritoneum open or closed); vagina closed, choice of catgut or silk; combined operation, by vaginal and abdominal incision; methods of Doyen, Martin, Richelot. (*b*) Vaginal—clamps (morcellation); ligatures, abdomen drained or closed.

The extraperitoneal treatment of the stump, by pins and the *serre-noeud* or elastic constrictor, has been abandoned except under unusual circumstances. Nevertheless, it is well to remember that it remains a precious resource as an expedient of emergency, when, by reason of shock or weakness from previous hemorrhage, it is advisable to terminate an operation immediately. In some cases also of Porro's operation, where the great vessels of the pregnant uterus are a formidable factor, or where there has been a rupture of the uterus during labor and operation of emergency is performed, this method of treating the stump will always have certain advantages for those who are familiar with it.

The method of treating the stump intraperitoneally by dilating and cauterizing the cervical canal and draining it with gauze has been generally given up, because in cases where there is especial reason to fear infection from the cervical canal it is better to remove the whole cervix.

Careful experiments have shown that the healthy cervical canal is not septic, and the preparation for hysterectomy now universally adopted included thorough cleansing and disinfection of the whole uterine cavity, so that when the opening of the stump is closed by suture it is found safe and preferable not to cauterize it, and thereby a better union is obtained.

If, when the stump is divided, the incision is made quite conical, by traction on the body of the uterus and an oblique incision, there is very little of the cervical mucous membrane left, and there is a flap of uterine tissue in front and behind. A long curved probe is passed through the canal from above downward, the assistant drawing down through the canal a strip of iodoform gauze wet in sublimate solution; this wipes all mucus and secretion from the mucous membrane, including any secretion which may have descended from the uterus during the operation, and prevents any infection of the cervical stump from the vagina after the operation. Even this procedure is not necessary in most cases. The flaps of the cervix are then united with catgut in continuous suture above the mucous membrane of the canal, and, returning, unite the peritoneum over the uterine tissue.

As to the indications for removing the whole of the cervix, or for leaving some of it, the burden of proof seems to be on those who advocate total extirpation, for it prolongs the operation from ten minutes to half an hour, while frequently there is some blood lost before the lateral and posterior vaginal arteries are controlled. It may be added that the field of operation is brought nearer the ureters, and accidents have happened from this reason. It would seem that the opening of the vagina would increase the chance of infection, in spite of the most careful disinfection before the operation, and often when the vagina is short and the abdominal walls are thick or rigid the difficulty

of operation is perceptibly increased. It is claimed that the pelvic floor is injured and the support of the intestines is diminished if the cervix is removed. It is not to be denied that the cervix uteri is the seat of sexual sensation to a considerable degree, and in many women it probably has a part to fulfil in the sexual orgasm, so that it is desirable to leave it intact unless there are indications for its removal. Nevertheless, whenever hysterectomy is performed for malignant disease of any part of the uterus, the extirpation should be total; when the cervix itself is diseased, so that it is enlarged, eroded, or secreting profusely an unhealthy mucus or pus, it is better to remove it; when the uterus is removed with the tubes for tubercular conditions, or for gonorrheal disease which manifestly involves the uterine mucous membrane, so that there is presumably an infectious condition of the secretions, it is better to perform total extirpation, especially as in these cases it is often essential to provide for drainage. The same necessity for drainage may be a reason for total hysterectomy in cases where subperitoneal growth of fibroids has lifted up the peritoneum and left large raw surfaces.

If it is decided to remove the whole of the cervix, instead of amputating it, the incision is carried down at each side, keeping close to the uterus, and pinching the lateral cervical arteries, until the vagina is opened; or with a knife a median posterior incision may be made, cutting against the cervix, until the vagina is opened; or the same end can be reached by passing one blade of a pair of scissors into the cervix and cutting through it posteriorly until the posterior cul-de-sac is entered. When the whole cervix has thus been removed, the operator has the choice of three methods: either (1) the vagina may be left wide open for drainage; (2) the peritoneum may be closed and the vaginal raw surfaces may be left open; or (3) the vagina and peritoneum may be wholly closed.

The method of election is that of closing the opening in the vagina with a continuous catgut suture, and afterward uniting the peritoneum with another continuous suture of catgut, so that there is an unbroken line of union from the free border of one broad ligament, across the pelvis, covering the stumps of the arteries and the line of union of the vagina, to the free border of the other broad ligament. When this is completed there is no raw surface whatever in the pelvic cavity, there is no need of drainage, and the convalescence is astonishingly smooth and painless. It makes it easier to unite the peritoneum smoothly, burying all raw surfaces if, instead of applying mass ligatures, the broad ligaments are held by the fingers when severed, seizing and tying each artery as it is cut. Of course, if it is desired to show in how small a time the uterus can be removed, the arteries will be at first secured with catch forceps and only tied after the uterus has been removed. Sometimes the difficulties of the operation are such that this is the only practicable method, but it is better to tie each artery when it is cut, for the time must be spent, in any case, before the abdomen can be closed, and there is no real advantage in removing the uterus in a given number of minutes, if the whole duration of the operation is not thereby diminished. When the vagina is cut open, it should be sewed together at once, being held together meanwhile by double tenacula forceps, so that the chance of infection from this source is minimized.

It is indispensable that in the preliminary cleansing of the vagina and uterus all septic material shall have been removed or sterilized; but, although this is easy to say, it is not always accomplished satisfactorily. In foul or suppurating cases it is well, after curetting and washing out the uterus with sublimate solution, to pack the cavity with gauze, and even to sew up the cervix with a few stitches, so that afterwards when the uterus is handled it shall not discharge an infectious secretion into the vagina. This can be done by an assistant so that the operator may keep his hands clean.

This brings us to the consideration of the question whether it is not well to proceed, after cleansing the vagina and uterine cavity, to the separation of the vaginal tissues from the cervix and the ligation of the uterine arteries from the vagina—in other words, to the method known as the combined operation. In cases of fibroids the finished surgeon will never have any difficulty in performing the whole operation from the abdomen. In the exceptional cases where a huge fibroid polyp has been extruded and the thick pedicle passes through the os uteri, it is better to tie and cut the pedicle, pack the uterine cavity with gauze, sew up the os, and then proceed to the abdominal operation as usual.

In cases of pyosalpinx or other obscure conditions it is not well to complicate matters by performing an important part of hysterectomy from the vagina, when on open-

ing the abdomen it may be found that the uterus with the appendages on one side may be saved, or that it may be unnecessary or inconvenient to remove the whole cervix.

In certain cases of cancer of the cervix, however, it may be a great advantage to remove all the tissue which is apparently diseased, before opening the abdominal cavity, if it is thought preferable to finish the operation by celiotomy.

The rule of all finished hysterectomy, either abdominal or vaginal, should be to close the wounds entirely, unless there is a positive indication for drainage or pressure packing.

It remains to consider the methods of Doyen and Martin, in which in the beginning of the operation the posterior vaginal fornix is opened from the abdominal side, the cervix seized and dragged upward, the broad ligaments are divided while compressed by the fingers of assistants, each artery as it is cut being seized and tied afterwards with pressure forceps. Martin ties the broad ligaments before opening the posterior vaginal vault. Richelot's method is somewhat similar, except that he separates the bladder from the uterus first and makes the incision between the bladder and the cervix, seizing the latter and drawing it up through the wound.

These methods, in simple cases, are rapid and showy, especially in the hands of their distinguished authors, who can make any method of operation seem easy and admirable. They are all outgrowths of the combined operation, by which a part of the operation was done through the vagina—in the case of the French operators, by the introduction of clamps from below, after the vagina was opened from above. They were evolved as a means of operating without the disadvantage of the Trendelenburg position, and for the convenience of an operator standing or sitting between the legs of the patient.

This brings us to the consideration of the relative advantages of abdominal and vaginal hysterectomy.

The advantages claimed for the vaginal method are: less danger of hernia, absence of cicatrix in abdominal wall, less time spent in operation, and less shock.

On the other hand, the abdominal operation has solid advantages which are founded on great principles of surgery and can never be shaken; for it gives greater certainty of diagnosis, greater facility in work by sight, the possibility of recognizing and overcoming unforeseen complications, greater security against wounding intestines and ureters, better control over hemorrhage.

There are certain special considerations which may further influence us in the choice of the method of removing the uterus, such as the age and physical condition of the patient, the amount of fat in the abdominal wall, the caliber of the vagina, the space between the pelvic bones, the preference of the patient, or even the possibility of obtaining consent to a necessary operation, which cannot be obtained if the abdominal wall must be incised.

The conditions, then, which would indicate the choice of the vaginal method with the use of clamps are: First, inflammatory conditions where the presence of pus in large amounts is certain, and the weakness of the patient is such that an abdominal operation would be probably fatal; in other words, where the operation is for the evacuation of pus in the pelvis, the removal of the uterus being incidental, if found to be necessary. Secondly, when the patient is old or weak, and the abdominal walls are very thick, while the vagina is capacious and the uterus freely movable, so that the vaginal operation promises such a saving of time that it seems preferable. Under favorable conditions it can be done in ten minutes or even in half that time, and in some cases this is of real importance. Thirdly, in cases of cancer of the cervix, when the conditions make it undesirable to close the opening in the floor of the pelvis, and the abdominal operation seems to give danger of sepsis.

Except under such rather exceptional circumstances, if vaginal hysterectomy is to have any standing in the present state of surgery, it must be as a very finished procedure of a very finished operator, and it must have a technique which will compare with the abdominal method.

The operation should comprehend the same improvements which have made the abdominal operation so perfect—that is, the vessels should be secured with catgut ligatures, the peritoneum should be accurately brought together, covering all raw surfaces, and the vaginal wound should be united, preferably with catgut, in such a manner as to bury the stumps of the broad ligaments, and to give a linear cicatrix, which may be expected to heal by first intention. While aware that it is possible to remove the uterus without using any ligatures, and without cutting the uterine arteries, yet this does not seem a safe and surgical method, and if the appendages are to be removed also, the absence of the

ligatures becomes too risky to make it a practical procedure. Supposing, therefore, that the ligatures have been applied and the uterus removed, we should try to do what we would do in operating from above—that is, we unite the anterior and posterior peritoneal layers of the broad ligament on each side, from the ovarian down to the uterine artery, with a continuous catgut suture. Then stitches can be passed through the vaginal walls and the peritoneum in such a way that both the peritoneal and mucous surfaces are accurately united, while at the same time the raw surfaces at each side are included so that there will be no oozing. If drainage is thought to be desirable, a small roll of gauze may be left in the center of the incision, instead of closing in completely.

Performed in this way, vaginal hysterectomy has a standing in favorable cases in comparison with the abdominal operation, but the admirable results obtained by the latter method leave little room for the former.

THE TREATMENT OF FALLING OF THE HAIR BY SIMPLE IRRITATION.

JACQUET (*La Presse Médicale*, Dec. 10, 1898), acknowledging that irritation must form the basis of all successful treatment directed toward making the hair grow, holds that this irritation should be intermittent rather than constant, and should not be carried to the stage of exudation—that is, it should stop at the point of producing simple hyperemia.

Personally afflicted with falling of the beard, he began treatment by making repeated firm pressure with the bristles of a stiff brush upon the bald area. In a few seconds the skin became red and warm, and this effect lasted from thirty to fifty minutes. The treatment was repeated night and morning until the part became distinctly tender. In four months the bald spot was entirely covered with hair.

Other patients on whom this treatment has been tried have experienced the same benefit, the treatment in their cases being repeated sometimes four to six times a day. The irritation should never be carried to the exudation stage. Together with this form of irritation the author suggests a vigorous friction with a dry brush over the whole area, and holds that by this treatment not only can baldness be prevented from appearing, but can be cured after it has developed.

The brush should be kept perfectly clean, since it produces many breaks in the epidermis, sometimes even causing slight bleeding.

GENERAL INFECTION OF URETERAL ORIGIN.

RENDU (*La Presse Médicale*, Dec. 10, 1898) reports that forty-eight hours after catheterism there developed general staphylococcus infection so severe that when the patient was taken into the hospital he appeared to be suffering from either suppurative meningitis or adynamic typhoid fever. This condition of general intoxication lasted five days, during which period the predominating symptom was high temperature. There then followed a period marked by the formation of multiple abscesses, located in the subdermic and in the cellular and aponeurotic intermuscular tissue. Thirty-eight such abscesses developed in less than a month and were successively opened. This led to extreme emaciation and muscular atrophy. Slight endocarditis developed, followed later on by hemorrhagic nephritis, due no doubt to the irritation incident to the eliminative toxins. This nephritis occurred thrice during a month, but in spite of it the kidneys remained competent. A true polyuria combined with diaphoresis accomplished the complete elimination of the poison in about two months.

The treatment in this case consisted in the application of baths and lotions, and a milk diet during the early stages of infection. Later, whilst the patient was suffering from hemorrhagic nephritis, tannin seemed to be distinctly serviceable.

A USEFUL METHOD OF DEALING WITH SURGICAL INSTRUMENTS.

HODGSON (*Intercolonial Medical Journal of Australasia*, Oct. 20, 1898) finds that steel, nickled, or silvered instruments, after cleaning with soap and water, may be sterilized by boiling in a strong solution of washing soda. In this solution they may be left indefinitely, remaining bright, unaffected, and sterile.

Instruments required very promptly for use should be left, after boiling, in a strong solution of caustic soda, from which they may be removed as required. By this means they are not handled before use, and can be used without a second boiling with impunity.

A useful fact is that instruments soiled, as

is a guillotine after use, may be left indefinitely in a strong solution of soda, the only effect being to clean the instrument. Another, that instruments may be removed from soda solutions, and allowed to dry by atmospheric action, without rusting. For many operations weak soda solutions are useful for holding the instruments, instead of the usual corroding carbolic solutions.

THE DEFORMITIES AND SURGICAL AFFECTIONS CAUSED BY WRONGLY SHAPED BOOTS AND SHOES.

JACKSON CLARK (*Medical Press and Circular*, Sept. 7, 1898) thus enumerates the chief deformities that are contributed to by badly shaped boots and shoes: (1) Hallux valgus; (2) hammer-toe; (3) flatfoot; (4) non-deforming clubfoot; (5) metatarsalgia, or Morton's disease; and with these deformities must be mentioned other common surgical conditions, *e.g.*: (6) corns; (7) in-pressed toe-nail. The latter two conditions may be briefly noticed first.

A corn is the result of abnormal pressure on the skin—frequently the result of badly shaped boots—and the removal of abnormal pressure is followed by the disappearance of the corn. If every one wore properly shaped boots the occupation of the chiropodist would be gone. Corns are sometimes symptomatic of more serious surgical conditions. Thus in hallux valgus a callosity may form over the prominent head of the first metatarsal bone; in hammer-toe over the head of the first phalanx, or tip of the toe; in metatarsalgia, due to sinking of transverse arch of the foot, a corn on the sole of the foot opposite the head of the third or fourth metatarsal bone is of frequent occurrence. In such conditions nothing short of removal of the deformity will cure the corn.

In-pressed toe-nail results from wearing badly shaped boots, which press the skin against the edge of the nail of the great toe, causing ulceration. The nail is purely passive—the boot is the active agent. The term "ingrowing toe-nail" implies perverted growth on the part of the nail, and this in turn has suggested avulsion of the nail or part of it as proper treatment of this condition. This operation is never required. When there is separation of the nail from its bed, a small piece of soft thin linen covered with carbolic ointment should be packed under the nail and between the surface of the nail and the fold of skin. If the condition resists patient trial of this measure the toe-nail may be removed and its matrix destroyed. If the latter step is not thoroughly carried out the "hypertrophy" will recur when the nail is reproduced.

Bunion, the commonest of all deformities in boot-wearing communities, is due simply to pressure of the boots pointed towards the central line of the foot. In young children tight socks will sometimes give rise to the same deformity. In the production of this as of other deformities, the effects of pressure tell more rapidly and to a greater degree when the bones and ligaments are softened, as in osteoarthritis. Pathologically the condition is a subluxation of the first phalanx and sesamoid bones outwards. In slighter grades of the affection displacement is easily corrected by slight pressure. In such cases, if proper boots and shoes are worn and the joint is manipulated twice a day, deformity will sometimes correct itself. In more severe cases a splint must be worn at night, and the toe kept in proper condition by some means or other during the day also. For night-splint a lever having a broad, well-padded fulcrum about the middle of the first metatarsal at the inner border of the foot is more effectual than the well known bunion-spring. For day use the same contrivances can be, in some instances, worn inside the boot, but each case must be studied and treated on its merits. Sometimes Sayre's plan of placing a cap of leather over the great toe, and attaching to the inner border of the base of this cap a band which is carried above the heel to the outer border of the foot, where it is attached by elastic insertion, will answer. The idea of providing a separate stall for the great toe appears to have originated with Fowler, who describes a boot with a septum consisting of a double layer of calf leather between first and second toe. Such a boot requires a special last. A similar idea has been embodied in the "toe-post." Many patients find the latter too rigid for comfort. The fact that wearing sandals is an efficient preventive of hallux valgus suggests the use of sandals as a curative measure. A stiff sole-plate with slots for tapes, by which the toes are retained in good position, is often the best appliance. If made of stiff thin leather it can be worn inside an ordinary stocking; if made of metal it must be applied over a digitated stocking, and worn inside of the boot.

In all cases of severe hallux valgus there is an obstacle to reduction of deformity, due to

the presence on front of the head of the metatarsal bone of a groove into which the inner edge of the base of the first phalanx fits. In such cases in order to remove deformity it is necessary to open the joint and chisel off the inner part of the head of the metatarsal bone. After this operation the toe is easily straightened, but patient after-treatment is required to prevent relapse.

Hammer-toe is usually associated with hallux valgus, and is generally a secondary effect of this condition. Anderson considers it to be analogous to the corresponding contraction sometimes observed in fingers, and refers it to primary want of growth on the part of the lateral ligaments of the first interphalangeal joint. That this may sometimes be the case I am ready to admit, but in the majority of cases the origin is as stated above.

In slight cases of hammer-toe the use of a plantar splint of thin metal covered with leather and fastened to the foot by tapes, and to the toe by a segment of the finger of a glove, will suffice to cure the condition. In more severe cases the lateral ligaments require division. When the skin is greatly retracted the head of the first phalanx may be excised. A very common treatment for this condition is amputation. This operation is rarely justifiable. In cases where the condition is due to hallux valgus, the removal of the second toe makes the former condition worse and renders its successful treatment impossible. In some instances one of the outer toes is deformed from compression of boots.

A severe neuralgia starting generally near head of third metatarsal bone is due to sinking of transverse arch of foot. Its dependence on badly shaped boots is in some cases evidenced by the fact that the patient only suffers when a particular pair of boots is worn. In other cases the condition appears to be due to osteoarthritis. In severe cases excision of the head of the metatarsal bone is required.

It would be wrong to suppose that every case of flatfoot is due to wearing badly shaped boots. This is, however, one factor in the production of flatfoot that is present in cases of hallux valgus. The outward displacement of the first phalanx of the great toe entails some outward shifting of the tendon of the flexus longus hallucis, and so weakens the support of the inner arch of the foot. The frequent combination of flatfoot with hallux valgus supports this view.

Reviews.

RAILWAY SURGERY. A Handbook on the Management of Injuries. By Clinton B. Herrick.
New York: William Wood & Company, 1899.

This book its author states is introduced to the profession because of the absence of any manual defining the distinctive features of railway injuries and their proper management. There is no effort made to treat other varieties of injuries nor to enter into detailed consideration of any, but rather to give concise, practical directions for handling the everyday cases that are met with.

The author in his introduction makes some claim for railway surgery as a specialty, and defines as a railway surgeon one who makes a special study of the distinctive features of railway injuries and their appropriate treatment.

The first chapter is devoted to history, statistics, and general considerations. It is interesting to note that there are more than 250,000 miles of railway in the United States, and that in the last year there were over 6000 people killed, over 36,000 injured—sixty-five every hour of the day and night. The mechanism of injury by coupling is described, also that dependent upon being run over. Attention is called to the fact that in fast-train injuries devitalization extends wide of the immediately crushed part; this, it is stated, is due to plugging of the large artery by a coagulum of blood.

Emergency cases, preparation of materials, sterilization, and anesthetics are all discussed. Chapters are devoted to cuts, burns, bruises, scalds, dislocations, fracture of the skull, fracture of the extremities, etc. Especial attention is given to amputation, its indications, and its proper performance. Among other subjects considered are traumatic neurasthenia, jurisprudence in railway surgery, examination of employees, and car sanitation and disinfection.

The book is extremely readable, and though the author has not made out a case for railway surgery as a specialty, he has certainly given a very clear exposition of railway injuries and their proper treatment.

THE TREATMENT OF DISEASE BY PHYSICAL METHODS. By Thomas Stretch Dowse.
Bristol: John Wright & Co., 1898.

This book is in reality devoted to a very full consideration of massage and electrotherapeutics, though its title might suggest that it covered a much wider field. Considering the subjects of which it has to treat, it

seems unnecessarily prolix and involved; and though it no doubt shows that the writer has devoted much time and study to his specialty, it does not tend to give the earnest searcher for the practical application of medical truth much help without what would seem to him an unnecessary amount of digression.

Among the headings of chapters are to be noted the Weir Mitchell Treatment of Neurasthenia, and the Nauheim or Schott Treatment in Diseases of the Heart.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Vol. I.
Philadelphia and New York: Lea Brothers & Co., 1899.

The following extract from the Preface shows the scope of these volumes:

"A somewhat intimate acquaintance with medical literature for a considerable period of time has convinced the editor of this publication that even if one has brought to him weekly the best medical literature of the world it is impossible to keep up with it in the sense of grasping its details and assimilating its really valuable practical facts in such a way that they can be applied at the bedside.

"Original researches, disputations, records of epoch-making cases or discoveries come to one so fast and so voluminously that a life's work could be found by the physician who attempted to study all the views presented to him. The state of the progressive medical man of to-day is that of a man who while hungry for food has thrust upon him such a mass of pabulum prepared in so many forms by so many cooks that it is possible for him to get but a taste of many dishes from which he might obtain much pleasure and strength if he but knew their real value and design. Often the technical appearance of an article staggers his mental digestion, and he casts it from him as being too difficult a morsel for him to assimilate.

"There are at the present time numerous 'Annuals' or 'Year-books' published with the object of recording in condensed form the greater part of the medical literature of the year, but in nearly all of them the process of 'boiling down' has been practiced without first sifting the useful from the useless, with the result that the physician has presented to him a mass concentrated, it is true, but so varying in quality that the good can only be separated from the bad by a process as difficult as that needed for the utilization of the crude material. What the busy physician needs to-day is a well-told tale of medical progress in all its lines of thought, told in each line by one well qualified to cull only that matter which is worthy of his attention and necessary to his success. He needs an article which can teach him all that the master of a specialty knows of the year's work, and he does not need an immense quantity of material which, however interesting it may be from its novelty, possesses no intrinsic merit.

"It is with the object of presenting such readable and useful material that these volumes are published, and every contributor to the pages of PROGRESSIVE MEDICINE has been asked to say what he has to say in narrative form, and, equally important, to place his hall-mark on the text, so that it will be a story which bears a personal imprint and will express not only the views of the authors cited, but the opinion of the contributor as well. The volumes contain personal narratives of medical advance, and this characteristic greatly increases their interest and value."

DIAGNOSIS BY THE URINE; OR, A PRACTICAL EXAMINATION OF URINE WITH SPECIAL REFERENCE TO DIAGNOSIS. By Allard Memminger. Second Edition Enlarged and Revised. Illustrated.
Philadelphia: P. Blakiston, Son & Co., 1899.

This is a small octavo volume of a little over 100 pages dealing with the subject of urinary analysis, and covering ground which is already covered in many other little handbooks of this type. It is typically a work which can be placed in the hands of medical students while learning practical urinary analysis, and it will give the practitioner a good idea of the common methods which he should employ for this purpose. It is not, however, as complete and thorough as some other works of the same character.

A HANDBOOK OF OBSTETRIC NURSING. For Nurses, Students, and Mothers. By Anna M. Fullerton, M.D. Fifth Revised Edition. Illustrated.
Philadelphia: P. Blakiston, Son & Co., 1899.

Dr. Fullerton's little manual of a little over 250 pages is printed in an attractive form and contains first-rate information, not only for the class of persons named in its subtitle, but also for many physicians who do not know as much as they should concerning the minute management of obstetrical cases, and who have not under them nurses who have received hospital training of this character.

Towards the close of the book a chapter is devoted to infant feeding and to the ailments of early infancy.

DISEASES OF THE EYE. A Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. de Schweinitz, A.M., M.D. Profusely Illustrated in Black and Colors. Third Edition, Thoroughly Revised.
Philadelphia: W. B. Saunders, 1899.

There are few books dealing with special realms in medicine which are sufficiently popular to attain to the dignity of a third edition within a period of a little less than seven years, the more so when it is recalled that a supplementary edition of the first was published. As with most books, each subsequent edition of Dr. de Schweinitz's work has been an improvement over its predecessor, and his care in the revision of the text is only equaled by the care with which he has controlled each scientific statement. In the present edition this repeated revision of the text has presented us with a clear, concise, and readily read volume, dealing with all practical points in connection with ophthalmological practice. New matter covering a number of interesting points has been introduced, of which perhaps the most important are the use of the Roentgen ray in detecting foreign bodies in the vitreous, and those portions of the text which deal with the microorganisms which infect the eye. Other chapters have been largely rewritten, and illustrations designed to still further elucidate the clinical portion of the text have been introduced. It goes without saying that this edition, as did its predecessors, shows on every page not only intimate acquaintance with clinical ophthalmology, but also that its skilful author is thoroughly in touch with the best and latest ophthalmological literature all over the world. On the other side of the Atlantic Swanzy and Nettleship have divided the honors in being the authors of popular handbooks for ophthalmic practice, but in this country Dr. de Schweinitz's book seems to be *facile princeps*, and will doubtless continue to be so.

THE MEDICAL NEWS POCKET FORMULARY FOR 1899. By E. Q. Thornton, M.D.
Philadelphia and New York: Lea Bros. & Co., 1899.

This pocket book is intended as a companion to the Medical News Visiting List, and takes up about the same space in the pocket as does that publication. In it the names of diseases are arranged alphabetically, and under the name of each disease are printed a number of formulæ which Dr. Thornton believes to be particularly efficacious. After each formula are given the indications for its definite and direct use. As the author of this formulary is not only a physician in active practice, but also a graduate in pharmacy, he has utilized his medical and pharmaceutical knowledge in such a way as to prevent incompatibilities, and to pick out particularly efficacious prescriptions, and what is perhaps more important, to define those cases in which drugs should and should not be employed. The volume opens with a dose list, a list of poisons and antidotes, and similar interesting material; and to those physicians who are wont to resort to this sort of an aid in prescription writing, we can cordially commend it.

ANNUAL AND ANALYTICAL CYCLOPEDIA OF PRACTICAL MEDICINE. By Charles E. de M. Sajous, M.D., and 100 Associate Editors, assisted by Corresponding Editors, Collaborators, and Correspondents. Freely Illustrated. Volume II.
Philadelphia: F. A. Davis Co., 1899.

It will be remembered by our readers that the first volume of this Analytical Cyclopedia appeared a little later than this last year, and that it extended in alphabetical progression to the inclusion of "Bright's Disease." The present volume extends from "Bromide of Ethyl" to "Diphtheria," and is compiled in a manner identical with that of its predecessor. As is evident from what we have said, these volumes are designed to come out each year until the alphabet has been completed. They do not deal, as might be imagined, solely with literature during the past year, nor do they consist in exhaustive enclyclopedic articles detailing everything that is known of value about the subjects of which they treat; they are rather abstracts and reviews of literature for the past few years, in some instances papers being quoted which were published as long ago as 1893, and abstracts being made from editions of standard text-books which were published in 1894, since which time a number of newer editions have appeared, as for example, in the case of H. C. Wood's Therapeutics, 1894; Biddle's Therapeutics, 1895; Hare's Therapeutics, 1894.

As we stated last year, the great difficulty with this method of publication is that by the time the last volume is issued the information in the first volume must be comparatively behind the times, although on the other hand it is to be remembered that Dr. Sajous' wide editorial experience has enabled him first to obtain competent assistants, and second, to weed out from the manuscripts submitted to his supervision material which he thinks devoid of interest to the medical public.

We naturally look with interest to see how thorough the review of current medical litera-

ture has been, and we are sorry to notice the omission of a number of papers which are distinctly notable in their character, either because they mention new matter, or else because they were summaries of the subject producing valuable conclusions and affording valuable information to the medical public. Nothing is said, for example, under the use of calcium, of the use of calcium chloride for the purpose of combating hemorrhage, and in the discussion of the ill effects of the bromides a considerable portion of the recent literature upon this subject is ignored. On the other hand, some of the collaborators have evidently taken great pains to make their departments as complete as possible. While the book is not copiously illustrated, the pictures which it contains are unusually well done, and the colored lithograph showing an eruption of the skin produced by bromide of potassium is one of the best lithographs that we have seen made in this country or abroad.

As a reward for his unfailing industry and desire to advance the cause of medical science, we trust that the medical profession will receive this and the following volumes with the enthusiasm which the editor's labors deserve.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

The discussion on "Pseudotuberculosis" at the Pathological Society of London drew a full house. Dr. Sims Woodhead in opening commented on the unsatisfactory character of the term "pseudotuberculosis," which had been employed from time to time by different observers to cover such a variety of lesions. He referred to a series of cases which had been detailed in the Report of the Royal Commission on Tuberculosis, in which the naked-eye appearances must unquestionably have led to the diagnosis of tubercular disease but for the negative evidence afforded by the microscope; these were associated with a variety of microorganisms quite distinct from the tubercle bacillus. He had also seen small glistening pearly nodules produced by strongylus filariæ in the lungs of sheep included among pseudotubercular lesions. The microscope showed that the nodules consisted of coils of nematode worms surrounded by proliferating connective tissue cells. Professor Muir, of Dundee, had described no less than six forms of pseudotuberculosis in birds. Then, again, in many museum specimens it was clear that cases of actinomycosis had been gathered up into the category of pseudotubercular lesions. Professor Boyce had rescued from this appellation the mycotic condition of the lung due to aspergilli, which Kottjar had described as "aspergillar pseudotuberculosis," but which Boyce termed "aspergillo-pneumonomycosis." The confusion was still further increased by some observers describing "a pseudotuberculosis bacillus" resembling the tubercle bacillus in its morphology and staining reactions, but not associated with the occurrence of pseudotubercular lesions. The position was this: on the one hand they had organisms of pseudotuberculosis which had the morphological and staining characters of the true tubercle bacillus, but which pathologically appeared to be widely separated from it; whilst on the other hand they had a whole series of lesions which presented certain superficial resemblances to tubercle, but which were not induced by the action of the tubercle bacillus. It was very difficult to say what typical tubercle is, seeing that the forms of histological lesion associated with tubercle are so manifold. There was not sufficient evidence to justify the accepting of "pseudotuberculosis" as a pathological entity. It was well to be precise in the use of the term "tuberculosis," and to regard the presence of the tubercle bacillus as the essential factor; on the other hand, it would make the position much clearer if the term "pseudotuberculosis" were rejected altogether, and an effort made to refer to their proper place the essentially distinct lesions grouped under this inappropriate name.

At the Edinburgh Medico-Chirurgical Society Dr. McBride reviewed the whole treatment of ozena, and alluded specially to the method of treatment by cupric electrolysis. The therapeutic principles which had chiefly found favor were: (1) Destruction of the transformed mucous membrane by the curette and by other methods. (2) The application of stimulating and irritating remedies; palliatives had perhaps been most efficacious. The electrocautery had been used in some cases with good effect; "vibratory massage" had been applied to the nasal mucosa by means of a probe capped with wool and made to rotate rapidly either by a manual or electric motor. The objection to this latter mode of treatment was that it occasionally pro-

duced hypertrophy of the mucous membrane. (3) Efforts had been made to secure freer drainage by widening the nasal fossæ by obturators and by other means. On the whole antiseptic injections failed to relieve the fetor, and glycerin had failed to relieve the extreme dryness of the mucous membrane. The discovery of a modified form of the Loeffler bacillus among many other organisms in the nose had suggested the employment of the diphtheria antitoxin, and one enthusiast recorded no less than sixteen out of thirty-two cases so treated. Dr. McBride himself had had some encouraging results with cupric electrolysis. Of eight cases, four were practically cured and had remained so for periods of eighteen months or more; the remaining four had been so recently treated as not to be adduced in evidence. Anesthesia was obtained by cocaine, and the current used varied from three to ten milliamperes. The copper needle was attached to the positive pole and was inserted into the inferior or middle turbinated bone, while the platinum or steel needle was inserted into the septum. The procedure was attended by little or no pain, either at the time or subsequently. He hesitated whether to attribute the beneficial effects produced to the copper salts or to the electricity. In the case of relapse it was desirable to repeat the treatment each six months so long as there was any prospect of betterment. Dr. Logan Turner remarked that the treatment was obviously not bactericidal, as the same organisms flourished in the nose after as before; he was inclined to look upon it as some sort of trophic influence, seeing that both nostrils benefited even when the electrolysis had been confined to one. He fancied that the antidiphtheritic serum exercised a similar stimulant effect locally, and led to the extrusion of crusts.

At the Medical Society of London, Watson Cheyne presented two cases of coxa vara, showing the result of division of the femur below the trochanters. The object of the operation had been to correct the eversion of the leg so that the patients might be able to walk. This form of operation seems to be preferable in young children rather than the method of removing a wedge-shaped piece of bone from the neck of the femur—a procedure which has produced very good results in adults. In children the neck is so short that the operation is one of very great difficulty, and moreover there is more than a little danger of permanent interference with the growth of the bone. The result of the operation was to restore complete usefulness of the limbs, but a totally unexpected result had been also noted in the arrest of the progress of the deformity in the neck of the bone. The operation is given in detail in the Transactions of the Clinical Society, 1893. An incision was made on the outer side of the thigh at the upper part, and the femur, having been exposed and cleaned, was divided transversely across by a saw a little below the trochanters. The foot and leg were then forcibly inverted till the normal degree of complete inversion was obtained, and being held in this position while the trochanters were pushed forward, a perforated oblong aluminum plate was placed over the femur opposite the line of division, and nailed on to the two fragments by tin tacks which had been nickeled. The object of this was to prevent rotation outward of the limb during the union. The limb was put up in the inverted position, and the wound healed by first intention. The leg was afterwards put in a fixed apparatus for several weeks. Previously to the operation the boy could neither stand nor walk, but now was able to walk quite well. In neither this nor the other case shown had any operation been undertaken on the second leg, but it was remarkable how both legs had benefited by the correction of the one. Why the deformity of the neck of the bone should have been arrested is not obvious. Mr. Cheyne made two suggestions to explain this: (1) That the process of repair and consolidation of the bone around the point of fracture may have extended upwards into the neck of the bone, and led to consolidation and arrest of the softening process which was leading to the curvature; (2) that the branches of the nutrient artery to the neck of the bone were divided in the operation, and as a result of diminished vascularity consolidation of the neck may have been hastened. Mr. Jackson Clarke mentioned several cases in which he had obtained good results without operation by means of apparatus devised to keep the foot forward and to take the weight off the hip.

The National Association for the Prevention of Consumption and other forms of Tuberculosis has set to work in right earnest to sweep away the reproach leveled at our nation by no less an authority than Sir William Broadbent at the meeting at Marlborough House, that in this matter we are "behind the world." The Association has followed not a little in the footsteps of our American brethren, who in this as in many

other branches of preventive medicine are well ahead of us. The methods of the Association are summarized as follows:

1. The education of public opinion and the stimulation of individual initiative by means of: (*a*) a central office for the collection and distribution of information as to modes of diffusion of tuberculosis and measures of prevention; (*b*) the circulation of pamphlets and leaflets setting forth in plain language the results of scientific investigation of the above points; (*c*) public lectures by men approved by the Council, and addresses at congresses and other public gatherings; (*d*) cooperation with other societies having for their object the promotion of public health; (*e*) the cooperation of the public press; (*f*) periodical congresses and the issue of an annual report; (*g*) the promotion of the establishment of open-air sanatoria for tuberculous patients.

2. The influencing of Parliament, county councils, boards of guardians, chambers of agriculture, and other public authorities on matters relating to the prevention of tuberculosis.

3. The establishment throughout the Kingdom of local branches of the Association, which are affiliated with the central office on payment of one-fifth of subscription of membership. Secretaries of branches are supplied with all literature at cost price.

Leaflet No. 1 is already in circulation in hues of green and pink, which invite attention.

A few days since we were enabled to show at the Clinical Society of London a case of myositis ossificans, in which there were present some features of great interest; these it was possible to demonstrate by means of skiagrams. The congenital condition of the great toes, which in several previously recorded cases has been described as hallux valgus, was shown to be in this case at any rate quite another condition. There was synosteosis of the metatarsal bone with the first phalanx, and to compensate this deformity an outward throw of the last phalanx underneath the second toe. In the thumbs there was a condition of microdactylia with rigidity; the rigidity was due to osseous union of the first and second phalanges to each other, while the shortness was mainly due to stunting of the metacarpal bone and not to general shortening of all the bones. For the rest the case, both in the clinical history and in the localization of the bony growths, was very much a replica of the historical cases of the disease already described.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

Dr. Plicque, of Paris, has published in a recent number of the *Presse Médicale* an article on the treatment of "ictère grave." This disease, as the author states, is undoubtedly the most dangerous infection known. Some primary cases are followed by death in a few days. When the disease supervenes as a secondary condition subsequent to, for instance, a severe case of syphilis, cirrhosis, or cancer of the liver, the affection in itself is not so much the real cause of gravity as is the primary disease. However, leaving aside these very severe forms, an active therapeutic intervention is often beneficial and leads to the best results. A major indication is the renal condition. Elimination of all toxins should be favored by a milk diet, plenty of liquids, and abundant enemata of cold water. Nothing should counteract this very urgent indication, so one can readily understand how advisable it is to be very chary in the use of intestinal antiseptics and sudorific drugs. One of the best intestinal antiseptics will be found to be calomel, which should be given in doses varying from one to two centigrammes every morning. The condition of the mouth and gums should be watched with care in case this drug is administered. The mouth is to be washed out frequently with a boracic acid solution or a one-per-cent chloral solution, rather than with a solution of chlorate of potash. Benzonaphthol as an intestinal antiseptic is much more innocuous than naphthol or salol, and may be given in doses of two to four grains. As a means of producing perspiration, which is so often a symptom of amelioration, hot drinks, hot grogs, acetate of ammonia in doses of four to six grains a day, are much more useful than pilocarpine, which has such a deadly action upon the heart. It has been proven by Drs. Scherer and Quinquaud that toxic influences are brought about in many cases by the formation of incompletely oxidized products such as leucin, tyrosin, and similar chemical bodies. Their complete oxidation either in the tissues or at the surface of the lung is urgently required, and inhalations of oxygen on the one hand, and on the other administration by the mouth of benzoate of sodium or of lithium, are the best means of increasing the oxidizing powers of the blood. These drugs are comparatively harmless, as they have no action on the kidneys. Benzoate of ammonia is useful when there is great dry-

ness of the skin. What has just been said applies with peculiar aptness to a special form of icterus gravis caused by phosphorus poisoning, and it is due to a certain extent to its oxygenating powers that turpentine has been so freely given in such cases. Capsules containing 0.25 centigramme may be given every two hours, the whole number daily being about ten or twelve. Dr. Carreau has given turpentine subcutaneously according to the following formula:

Ozonized turpentine, 10 grammes.
Liquid vaselin, 50 grammes.

These injections must be made with the usual antiseptic precautions.

Dr. Chauffard, physician of the Paris hospitals, has often found it useful in some cases of hyperthermia to give cold baths when the temperature of the patient is over 39° C. (102° F.). The results have been most gratifying. The cold bath should not be so rigorously applied as in typhoid fever, and the water is to be at 79°, 75°, or 71° F. The general reaction should be watched for with care. If the heart action is weak, caffeine or sparteine should be given, or even large injections of saline solution. Iced champagne is well tolerated. Hypothermia is a worse symptom than hyperthermia, and should be treated by stimulation, alcohol, cutaneous rubbing, and injections of saline solution. When there is hemorrhage inhalations of oxygen are after all the best means of controlling the latter. Hydrastis canadensis in metrorrhagia is often efficacious. Special indications are given by the causes of the disease. If this be phosphorus, turpentine is very useful, as well as washing out of the stomach to remove the phosphorus even twenty-four hours after ingestion of the poison; but no milk should be taken, nor any fatty foods, which serve to make the phosphorus soluble. When one finds on examining the patient that there is a past characterized by attacks of intermittent fever, quinine, which is not indicated in most cases, proves very beneficial.

In a recent review published by Dr. Babel, of Geneva, a certain number of new methods employed in Switzerland are indicated. Among the latter our readers may be glad to hear of a new mechanical device discovered by Dr. Treuthardt, of Cossonay (Vaud), designed to remove the mucous secretions that obstruct the trachea in some cases of infantile bronchial pneumonia. At an advanced period of this terrible malady one may notice that the child breathes with difficulty, and there is a tracheal sound which indicates that the bronchial tubes are filled with secretions. The patient seems by this time well-nigh gone, and it is at this period that Dr. Treuthardt seems to have been able to bring back to life a certain number of children of varying ages, even those of only two months old. The child should be placed horizontally in the arms of a nurse, face downwards; one hand of the nurse holds up the chest, another lifts up the head. The body is then energetically rubbed, especially the thorax, with woolen strips dipped in very hot wine, and between times sudden intermittent pressure is brought to bear on the ribs so as to keep up artificial respiration. Hiccough becomes more and more uncommon, and the mucous deposits can be removed from the mouth by inserting a finger covered with a cloth. This should be kept up until natural breathing has set in. Nausea should then be provoked by titillation, when small masses of mucous secretions will be removed, and the patient will recover from his condition of stupor. The child can then be put to bed and the frictions diminished in frequency, but the patient should not be left alone night or day, and especially he should be kept from falling asleep. Sleep in such cases means death, and the physician should use all his authority in such cases to have the treatment kept up and a cure assured. As soon as the patient can absorb food, light tonics are given him—for instance tea, either pure or with milk. When the child has become somewhat stronger and its bronchial tubes are sufficiently cleared, it may be allowed to sleep in the arms of its nurse, and should not be put to bed until one is sure that after half an hour's doze there is no tendency to suffocation. Convalescence sets in rapidly in such cases. The condition of the lungs should, however, be watched most carefully.

Dr. Lucas-Championnière, surgeon at the Hotel Dieu, who is well known for his having been one of the first to introduce antisepsis into France, recently read a paper at the Academy of Medicine on the treatment of hernias by the use of the bicycle. Dr. Lucas-Championnière cited Dr. Loir's works on this subject, which have been published recently. In the first case cited by the latter an inguinal hernia dating from four years back was recognized, and it was treated without success by compression. Cycling was recommended, but the seat being too high

the hernia kept on escaping under the bandage. In 1898 the patient took to riding a very low-wheel, and he found as a result that the hernia no longer escaped. Four months afterwards the patient was completely cured of his hernia. Exercise is excellent for patients suffering from hernia, and it is better that they should work too much than not enough. Dr. Jennings, of Paris, has shown by several observations published ten years ago that the use of the bicycle was capable of curing hernias. Dr. Mohamed, of Guy's Hospital, observed on himself personally the beneficial influence of exercise. Among elderly patients suffering from voluminous inoperable hernias the use of the bicycle has seemed to produce good results. As an explanation of this influence we can admit that the use of the bicycle suppresses the vertical position, and thereby the descent of the hernia under the influence of weight. The abdominal walls are also strengthened, as they are more frequently used. Moreover, obesity is to a certain extent removed and the hernia more easily reduced. A few practical hints should be given to patients in such cases; hills should be ascended on foot, and no scorching indulged in. The bicycle must be chosen with a low seat and the saddle placed not over the tread, but much further back, as in this way the muscles of the abdominal wall are brought into play. Fencing and riding can be indulged in at a later date.

Dr. Lemoine, of Lille, professor of clinical medicine at the university of that town, has been trying methylene blue in some cases of acute articular rheumatism, and has found it in its action more efficacious and more rapid than sodium salicylate. It acts much better than salicylate of sodium in various forms due to gonorrhea. To be efficacious and harmless the drug should contain no zinc salts.

Professor Lannelongue, a friend of President Faure, who was called in to see him the day he died, spoke recently at the Academy of Sciences on the treatment of what he calls tuberculomes—*i. e.*, tubercular abscesses. These, as is well known, may be isolated, or else due to some osseous lesion. As a general rule, these abscesses should be operated upon as soon as possible. Extirpation of the whole mass is undoubtedly the best operation that can be carried out, but this treatment can only be applied to a certain number of cases, where the lesion is quite limited. If the cavity of the abscess is large, opening up of the latter and curetting are well indicated, and produce good results in some cases; in others the treatment by injections is successful. This treatment consists in tapping the abscess at a point where the skin is quite intact, removing the pus by aspiration, and washing out the cavity with a boracic acid or a carbolic acid solution. Once the liquid comes out perfectly clear, which indicates that the cavity has been thoroughly washed out, an injection is made of:

Sterilized almond oil, 90 grammes;
Iodoform, 10 grammes;
Ether, 10 grammes;
Creosote, 2 grammes.

Dr. Ménard, a former *chef de clinique* of Lannelongue, and surgeon-in-chief of the Hospital of Berck-sur-mer, which was founded for scrofulous children by the Empress Eugénie, generally uses a solution of naphthol and camphor, equal parts, which forms an oleaginous, dark-looking liquid. The results of this treatment are very satisfactory. In some cases one injection suffices; at other times several are found necessary. Dr. Ménard applies this treatment to all cases, and his results are most satisfactory. When the injection of camphorated naphthol, or, as it is called in French, "naphthol-camphré," is made, a small amount only should be left. So far as the writer of this letter can say, there never has happened any untoward effect arising from the use of this preparation, an affirmation that can hardly be made as to the iodoform injection, which to his knowledge was followed by death in one case. When alarming symptoms follow the injection, immediate evacuation and thorough washing out would be the only means of preventing the comatose condition and heavy perspiration from being followed by death.

President Faure's death has caused much comment amongst medical men, and it does not seem to be quite clear as yet whether it was due to hemorrhage or thrombosis, though the rapid progress and swift termination of the illness would seem to point to the former cause. There was what is called in France "paralysie alterne," so it must be admitted that the lesion was located in the pons Varolii or its neighborhood. President Faure had long been suffering from pronounced arteriosclerosis, and his consulting physician had counseled moderation in all physical exercises. The President was very fond of shooting and riding. However, the day of his death he had not been feeling well, and had given up his usual ride in the Bois de Boulogne.

ROME LETTER.

By John I. Eyre, M.R.C.P., D.P.H. Cambridge.

About two years ago a large and somewhat influential section of the Italian doctors started a crusade against all the foreign medical men who are permitted by the Italian Public Health Act to practice their profession among foreigners only in Italy. The object of this crusade was to induce the Italian Government to modify the above law in such a manner that the foreign doctors would be obliged to obtain a degree in one of the Italian universities before they were permitted to practice in Italy. They also wished that such modification in the law should be made retrospective—that is, that it should apply to the foreign doctors who were actually practicing in Italy. The reason assigned for this proposed change in the law by the Italian medical men was that all other countries obliged the foreign doctors, including the Italian, to obtain the diplomas of the respective countries before they could practice in them. The Italian doctors put their views before the Minister of the Interior of the Italian Government, and he gave them a favorable answer.

These facts having come to the knowledge of the British and American doctors practicing in Italy, they formed an association for the purpose of opposing the proposed change in the law. The association elected three of their members residing in Rome as a committee to look after their interests in reference to this question. The committee had an interview with the Under Secretary of State of the Italian Government, who was entrusted with the proposed modification of the law, and pointed out to him the injury that Italy would suffer in a financial way were the proposals of the Italian doctors legalized. It also stated that in England and in about half the States of America foreign doctors were allowed by law to practice their profession without obtaining the diplomas of these countries. The committee also brought the question before the General Medical Council in London, the various medical corporations in the United Kingdom, and the British and American ambassadors in Rome. The result of this action was that Lord Salisbury warmly took up the subject on behalf of the British doctors, and he induced the Italian Government to let the law remain as it was. This result was of course not satisfactory to the Italian doctors, and as soon as the new Italian Government came in they again appealed to it for the desired modification in the law.

A few weeks ago Dr. Santini, who is the champion of the crusade in the Italian Chamber of Deputies, begged the new ministry to bring in a bill to prevent foreign doctors practicing in Italy unless they possessed an Italian diploma. General Pelloux, the Minister of the Interior, declined to do so, but he promised that the Government would interest itself in a diplomatic way to obtain reciprocity of treatment in favor of the Italian medical men who practice their profession in other countries. The Italian ministry has quickly fulfilled the above promise, as the following circular has already been sent by the Italian Minister of Foreign Affairs to the Italian ambassadors in foreign countries:

Article 23 of the Italian law on Public Health, while it forbids, as a general rule, the practice of medicine in the Kingdom to those who are not provided with the corresponding diploma acquired on the basis of our scholastic regulations, permits, by way of exception, that foreign practitioners may exercise their profession in Italy among foreigners only.

This exception, however, adopted in favor both of the foreign doctors and of the foreign residents in Italy, who may thus avail themselves of the services of the practitioners in whom they have confidence, is to the disadvantage of the native doctors through the competition thereby caused, and it is, in many cases, contrary to equity, inasmuch as the States are very few that, like Italy, accord an equal favor to foreign residents.

The Royal Government, therefore, has the intention of modifying the cited law in the sense of limiting the exception with which it deals in favor of those foreign doctors only in whose country our countrymen enjoy such special treatment.

I shall be thankful, therefore, if your Excellency will request from your Government an answer to these two questions:

1. Can Italian doctors there practice their profession among all or only among the foreign residents, without obtaining a new diploma?

2. In the negative case would your Government be disposed to accord to them such permission if in Italy we continue to consent to the doctors of this country practicing their profession within the limits above indicated?

It is to be hoped that England and America at least will respond favorably to this circular and agree to the adoption of reciprocity of practice with Italy, and thus put an end to the agitation.

In the *Supplemento Al Policlinico* of February 11, 1899, Professor Celli and Dr. Valenti, of Rome, published an important note on the "Etiology of Dysentery." The authors state that in 1896 Professor Celli published *in extenso* in the *Annali d'Igiene Experimentale* his remarks on the "Etiology of Dysentery in its Relations with the Bacillus Coli and with

its Toxins," in which he demonstrated that the diagnosis of the bacteria can be made by the study of the action of their toxins, and by this means he differentiated from the many varieties of the B. coli that form which he called the bacterium colidysentericum, because he considered it the specific cause of dysentery in man. These researches were afterwards confirmed by Del Pino and by Alessandri. Since then the authors have continued their experimental observations on the toxic products of the same variety of bacteria, and in the respective antitoximmunity and antitoxitherapy. Using the toxin obtained from alcoholic precipitation of broth cultures filtered through blotting-paper, and reduced to powder toxiprotein—that is, a mixture of toxin and protein—after a long series of useless attempts of immunization of dogs they, on May 4, 1897, succeeded in immunizing an ass, at first subcutaneously and then endovenously. This animal after a long time no longer reacted to the toxic inoculations, so that they gradually arrived at from seven centigrammes of dry toxin injected subcutaneously to one gramme injected into the veins. The serum that they had obtained they call for brevity and clearness of explanation serum A.

Meanwhile Valenti studied the action of the proteins of the B. colidysentericum and, comparatively, of other B. coli, extracting them according to Koch's method for the new tuberculin. He demonstrated that they had no action in herbivora, and, instead, in dogs and cats a characteristic action, chiefly in the large intestine, and analogous to that of the above mentioned toxiprotein. With these two proteins, which they call C. O. and C. R., they tried to immunize two young asses. Of these two animals, that inoculated with C. O. died of very acute intoxication after the third injection and a dose of C. O. Cc. 18=38 milligrammes of dry substance. They, therefore, had to immunize with the same C. O. another young ass. They call serum B that obtained from the animal inoculated with C. R., and serum C that extracted from the animal injected with C. O. The three animals, inoculated respectively with dry toxiprotein, with C. R., and with C. O., are still undergoing the injection of the same toxic substances in the Milan Serum-therapic Institute.

The authors then give particulars of some of their experiments on kittens to demonstrate the degree of immunity reached and the value of the respective serums. The results obtained are that the serum A is the most efficacious both as a preventive and curative; the serums B and C act as preventives, but as curatives they have uncertain (serum B) or no action (serum C), succeeding only in retarding death for a few days. Death took place by marasmus, without any apparent organic lesions or intestinal localizations, which demonstrated that in the body of this B. colidysentericum, as in many other pathogenic and saprogenic bacteria, a marantic toxin is found, which, inoculated in animals, does not produce any counter-poison.

The authors note that the results of analogous experiments were not always equal to the preceding, and those in which they lessened the quantity of the serums were negative. So that for dysentery they were very far from those high degrees of active immunity and the consequent passive immunities that are obtained against distinctly toxic infections such as diphtheria and tetanus. With the best of their serums—that is, serum A—they experimented on the serum-diagnosis of several B. coli in the Bacteriological Laboratory of the Rome Institute of Hygiene. The results obtained with the hanging drop confirmed the specificity of the serum A in respect to the B. colidysentericum, and also confirmed the difference from the other bacteria of the same species.

During the last summer, an epidemic of dysentery being prevalent in Udine, the authors tried the serum-therapy. Having only a few cases at their disposal they wished to test the three serums, first inoculating subcutaneously serum A, and then the others. The results were as follows: Of six cases of acute dysentery, recently developed, with the serum treatment there was a rapid disappearance in all in two to five days of the sanguinolent feces, and ready cure; in a seventh case of twenty days' duration, in an old woman of eighty, also suffering from mitral insufficiency and parenchymatous nephritis, the serum-therapy had no action. At the same time, of four other patients who were admitted into the hospital suffering from acute recent dysentery and treated in the ordinary way, three died. The authors state that these results have encouraged them to continue the immunization of their animals to prepare the serum for testing on a larger scale.

Recently Shiga, of Kitasato's Institute for Infectious Diseases, has published a work in which he confirms the fact that the cause of dysentery is a variety of the B. coli, which he

has differentiated by means of serum-diagnosis—that is, with the serum of the blood of persons suffering from dysentery. To solve the doubt that Shiga has raised as to the identity of his bacillus dysentericus with the bacterium dysentericum (Celli), the authors retested and compared its cultural characters, and they found that after many successive passages through animals and in cultures for preserving or exalting the virulence it maintains itself a typosimile, as is the B. dysentericus. The authors then describe the appearances in gelatin stab cultures, and the results of the serum-diagnosis with the serum of the blood of dysenterics, and they have come to the conclusion that, according to every probability, the bacterium colidysentericum (Celli) is identical with the bacillus dysentericus (Shiga).

Professor De Dominicis has published an article in the *Gazzetta degli Ospedali e delle Cliniche* on the influence of fasting in the treatment of acute infectious diseases, in which he says that an inexact valuation of the advantage of feeding patients, through a misunderstanding or an inopportune desire to sustain the forces, frequently turns out injuriously. The observations made at the bedside for more than twenty years have convinced the writer that the disturbances of digestion, producing perhaps on the one hand insufficient reparation, and on the other a reproduction of toxic substances, generate maladies of diverse kinds. These views are supported by the observations of able clinicians, who have given solid support to the doctrine of dyspeptic autointoxications, in which he was one of the first, if not the first, to call attention, especially when Baccelli, apropos of the discovery of the infective agents, had foreseen the bacterial toxins. Owing to the light which bacteriology has thrown on the etiology of diseases, De Dominicis had convinced himself that these alterations in nutrition give a substratum or a reenforcement to the virulence of diseases. The experiments of the laboratory had confirmed these views. In not a few extirpations of the pancreas, performed in dogs and other animals, the author observed that the animals who had eaten before the operation, or soon after, generally died, whereas those who were kept fasting for one day before and two days after the operation nearly all survived. In a series of starved dogs treated with active cultures, or with their toxic extracts, or by diverse traumatisms, the pathological changes were not as marked as in those which were met with in dogs kept on ordinary diet. Several other experiments have demonstrated to him that fasting, within certain limits, renders animals, as well as men, more resistant to microbic actions. Tissier and Guinaud had similar results in animals intoxicated with toxins of the pneumobacillus and of the diphtheria bacillus.

Finally, the author referred to a man of thirty-five years affected with influenza, and treated with abundant alimentation, who became very dangerously ill, and through intense headache, vomiting, giddiness, titubation, etc., followed by delirium and coma, was thought to be suffering from a tumor of the cerebellum. The author advised keeping him fasting until the awakening of his digestive capacity, and also free lavage of the stomach. After four days of this treatment the patient regained consciousness, and gradually recovered.

A ZINC COLLODION CAUTERANT PASTE FOR EPITHELIOMA.

To the Editor of the THERAPEUTIC GAZETTE.

DEAR SIR: A gentleman about sixty years of age recently presented himself for the removal of an epithelioma involving the skin and subcutaneous tissues, and situated in the nasal corner of the eye. The growth was about three-quarters of an inch in diameter and typically epitheliomatous in appearance. It seemed especially well suited for treatment by cautery.

Wishing to apply the escharotic in such wise that the patient should not be compelled to wear bandages, and so that the irritating application should not gain access to the eye, I combined the adhesive properties of collodion with the destructive ones of zinc chloride, taking equal quantities of each ingredient. With this paste the growth was painted, the application being renewed every second day. Before each renewed application the coating was removed with ether, after which fomentations with hot water separated the necrotic tissues from the living.

By this means the entire growth was removed, after which the granulating tissue was protected by a layer of boric acid ointment, until complete cicatrization was accomplished; this latter process being hastened by a five-per-cent solution of silver nitrate.

The cosmetic result was extremely favorable, no trace whatever being left of the malignant neoplasm.

A. G. BROWN, M.D.

REDBANK, N. J.

—THE—

Therapeutic Gazette.

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*VARIETIES OF ECZEMA AND THEIR TREATMENT.**

BY ARTHUR WHITFIELD, M.D. (LOND.), M.R.C.P.,
Physician to the Skin Department, Great Northern Central Hospital; Assistant Physician, West London Hospital.

Although eczema is a disease of such common occurrence that, in one form or another, it makes up over a quarter of all skin diseases, its pathology is not yet established and its varieties are given differently by different observers. There have been lately some further attempts to formulate our present knowledge, and I have therefore thought that it might be of interest to discuss some of the still unsettled points with regard to the varieties and treatment of the disease in the light of some of the recent writings. The older classification of Hebra, which one might almost call the first definite one, was into idiopathic eczema, or that caused by local irritants and injuries, and symptomatic, or that resulting from internal causes. This was of course an etiological classification, but there were at that time, and remain to-day, slight enough grounds for this division, since little was known about the external agencies producing the disease and practically nothing

*Read before the Harveian Society, Feb. 16, 1899.

about the internal ones. Another classification which rested less on pure theorizing was that into acute and chronic, but here the words were used apart from their general meaning in medicine, referring more to the intensity of the process than to the rapidity of its course. Many other subdivisions were also made, but these mostly referred either to stages in the process, as eczema rubrum, eczema squamosum, or to regional distribution, as eczema palmare, eczema faciei, etc.

In 1887 Unna collected all the symptoms which the various authors had previously grouped under the heading of seborrhea, together with some forms of eczema and psoriasis, and designated the class so formed "eczema seborrhœicum." This class has, I think, with certain reservations been almost universally accepted.

We have, then, if we are going to agree with the innovation introduced by Unna, two varieties of eczema, one of which we may call simple and the other seborrheic, and with your permission I will proceed to examine the evidence upon which this second variety is based. Unna found on examination that attacks of eczema of the head, body, and limbs were often preceded by a scurfy condition of the scalp. This scurfy condition is what was previously known as pityriasis capillitii. He also noticed that in many of these cases one could find on close examination that as well as the patches of eczema there were also often present typical patches of what was previously known as seborrhœa corporis or lichen circumscriptus. He then examined these two conditions histologically—namely, pityriasis of the scalp and seborrhœa corporis—and found present changes which he considered to be characteristic of eczema, these being an incomplete production of keratin, associated with proliferation of the epithelial cells, and an edematous condition of the deeper layers of the epidermis. Now if we stop to consider these changes for a moment we shall, I think, see that they are the changes which are always associated with inflammation, namely, loss, or partial loss, of function, increased cell production, and increased lymph exudation. It would therefore appear that it is unjustifiable to assume that these changes are characteristic of eczema; in fact, we find much the same in psoriasis, and this fact it was, I believe, which led Unna to state that psoriasis was nothing but a variety of seborrheic eczema. But in the mildest form of the chronic scurfiness of the scalp the cell proliferation may be very slight or absent, and the edema of the deeper epithelium very trifling, so that it seems hardly justifiable to rank the condition as an inflammation at all.

Psoriasis was included by Unna under the heading of seborrheic eczema because in the first place he found the changes in the epidermis already referred to as present in pityriasis of the scalp, and also because he found present in the scales the morococcus, which he considered the pathogenic microbe of eczema. In classing psoriasis with eczema he met with great opposition from nearly all other authorities, since the disease, although sometimes difficult to distinguish from cases of seborrheic eczema, has so many characteristics of its own that it is almost impossible not to regard it as a clinical entity. On the other hand, it is no reason for disputing its independent existence that it is occasionally closely simulated by another disease, as we know how difficult it may sometimes be to distinguish syphilis from psoriasis, although we feel certain that there is no relation between the two.

If, then, we are to exclude both cases of psoriasis and simple pityriasis of the head from the category of seborrheic eczema, does anything remain? I think there does. There are certainly many cases of what we cannot call simple seborrhea of the head, body, or extremities, which yet appear to have supervened upon the simple seborrheic states, and which may therefore be justly called seborrheic eczema. Such an eczema generally, but not invariably, starts on the scalp and works its way downwards, taking the central grooves of the chest and back as its path, and usually not affecting the limbs until later. This variety of eczema deserves, I think, separate notice, from the reason that it has several important characteristics of its own. In the first place, it nearly always appears to begin in the follicles, though later it may spread to parts such as the palms and soles, which possess no follicles; secondly, it is nearly always sharply defined at the margins of the patches; thirdly, it tends to spread serpiginously. In Unna's original description of the disease these characteristics are thoroughly brought out with the exception that, in my opinion, he did not lay sufficient stress on the affection of the follicles as distinguishing this from other forms of eczema. There are, of course, other points of interest about this variety, such as the greasy nature of the scales present and the usually small amount of serous discharge found even in moderately

acute cases. These latter are, however, not sufficiently constant to be considered diagnostic of the disease. It still remains an open question whether this disease, when acutely inflammatory, is to be considered an eczema or not, several well known authorities preferring to call the disease seborrheic dermatitis, since they believe that it may be distinguished from true eczema. Audry published a case of great interest in the *Annales de Dermatologie* for 1897, page 551, in which the disease attacked a waiter who had been severely burned in early life, so that the outer surface of the left arm was occupied in its entirety by a large, deep cicatrix. The patient gave a history that the disease began with a red patch on the left cubital region, which soon discharged and then crusted over. The point of interest in the case lay in the fact that when seen the disease had spread so as to encroach on the area of the cicatrix for over half an inch, and in addition to this there were two independent patches lying in the very center of the scar. On the back of the right arm there was a large patch, which Audry describes as being as typical as possible of seborrheic eczema. While in the hospital two inoculations were made from the diseased area, one being into healthy normal skin, the other into the healthy scar tissue. Three days later the point of inoculation into the normal skin showed a typical patch beginning, while the inoculation into the scar tissue remained without effect. From this case Audry concludes that the disease called seborrheic eczema is autoinoculable on its subject; that it may develop on a scar which is completely deprived of the elements furnishing the fat, and this is a characteristic which it shares with psoriasis; that it develops better on normal skin. I have quoted this case for two reasons: first, that it points strongly to the fact that seborrheic eczema is a parasitic affection, and secondly, that it proves that the disease may develop on parts of the skin which have neither sebaceous nor sweat glands.

Apart from this almost universally acknowledged form of eczema, there are one or two other varieties which have been described and deserve some notice. First there is the form described by Morris under the name of eczema folliculorum, and on which he read a paper before this Society just ten years ago. Following his description I am unable to distinguish it from a very chronic form of deep-seated seborrheic eczema, but I have not had the opportunity of seeing a case, and he informs me that it is a very rare disease. Morris himself is convinced that it is a clinical entity, and seborrheic eczema is so common a disease that the two are not likely to be identical, although possibly allied, eczema folliculorum being a connecting link between eczema and sycosis, to the latter of which Morris himself believes it to be related. Neisser has described some cases of what he calls eczema folliculorum after Morris, but I think that his disease is undoubtedly our old friend seborrheic eczema. The disease begins in the follicles, especially on the back, but affects other parts as well, and then usually runs into patches. I am perfectly familiar with the disease described by Neisser and illustrated by him by photographs. The rash begins as red, hard papules scattered widely over the back, each papule corresponding to an enlarged and prominent follicle. Usually, but not invariably, the original papule flattens down and the disease spreads centrifugally, picking out the follicles as it goes. The intervening skin is reddened and may be scaly. In some cases the disease shows very little tendency to this serpiginous advance, and new follicles are affected at a distance instead, probably by infection from scratching or the rubbing of the clothes. Neisser thinks that the accompanying eczema is probably independent, but I think it is much more likely to be a part of the same process. Probably the parasite, whatever it be, grows much more easily in the follicles than on the surface epithelium; and Neisser's contention that the eczema may be cleared off while the follicles remain affected seems to me to find an analogy in the manner in which one may clear off the ringworm fungus from the surface of the skin but find it difficult to eradicate from the follicles.

Next there is the disease described by Hans Hebra as eczema mycoticum. This is an extremely obstinate affection of the follicles, accompanied by some serous discharge and a considerable crusting. It is seated chiefly on the flexor surfaces of the joints, and is especially apt to attack the scrotum and the anal fold. It is accompanied by such furious itching that the patient's life becomes a burden to him. In appearance the disease is characterized by a good deal of thickening and crusting of the skin, while the follicles are picked out as very hard and rather pale papules. While I was attending Hebra's clinic he was treating all his cases with strong applications of chrysarobin in traumaticin, and with great success, so that as he found

organisms present in some cases, it is almost certain that the disease is parasitic.

Lastly, Crocker has described a form of eczema which he calls eczema circumscriptum and believes to be parasitic. This disease occurs in patches of red papules below the knee, but his description does not say whether the follicles are much affected or not. It appears to be somewhat easily cured by a weak parasiticide ointment.

These diseases all bear a strong family likeness to each other and to seborrheic eczema, though they are probably not all caused by the same parasite. Until, therefore, the various parasites are discovered and we are able to class them definitely, as we are some of the forms of ringworm, I think it is simpler to group all these cases under the heading of seborrheic eczema.

Leaving the question of seborrheic eczema, we return to the so-called simple eczema. Of the etiology of this disease we are almost entirely ignorant, and as it would take much too long to enter into the various theories held with regard to its causation and pathology I shall content myself with referring to a few points of practical importance. There have for a long time been two main opinions on eczema, one that it is the outward manifestation of some inward disorder—that is, that it is a constitutional disease—and the other that it is an entirely local disorder due to the action of some local irritant, parasitic or otherwise.

Leaving out all such obscure theories as the dartrous diathesis of Hardy, there remains one definite disease which has been believed to stand in causal relation to eczema by many good observers. It may be of interest to glance at the facts that are known about this relationship. At the Congress for Internal Medicine in 1891 Garrod read a paper emphasizing the frequent association of gout with eczema. His chief points were as follows: Patients who have suffered from acute articular gout are specially liable to attacks of acute or chronic eczema. In such patients the disease has been especially noticed to occur in dry springs with a cold east wind, and in such cases it has also been noticed that the regular spring attack of articular gout has not occurred, which looks as if the attack of eczema had replaced the gout. Women of gouty family history are liable to attacks of eczema about the climacteric, attacks of true gout being delayed until after the cessation of the menstrual flow. Lastly, Garrod mentions the case of a gouty patient with eczema who found that the ingestion of urate of soda caused a great irritation of the eczematous patch, this irritation quickly subsiding on discontinuing the drug.

As regards the form and distribution of this so-called gouty eczema, it may be either acute or chronic, and it affects, in order of frequency, the external surfaces of the ears, the meatus and the skin behind the ears, the back of the neck, the eyelids and different parts of the face, the groins and other internal surfaces of the flexures of joints, the scrotum, glans penis, and prepuce. Further, it may affect the hands and feet, especially the dorsal surfaces of the fingers and toes, and it may attack the arms and legs and be scattered all over the body. From this we see clearly, I think, that there is no special characteristic which will serve to tell us whether any given eczema is gouty in origin or not.

As regards treatment Garrod says that the acute attacks, especially when replacing an attack of articular gout, are easy to cure with the ordinary treatment for gout, but that the chronic forms are often very resistant. This corresponds to our usual experience of the disease, namely, that acute attacks recover almost by themselves, whereas chronic patches often defy treatment. I think from this we may conclude that there is a special proneness to eczema in gouty patients, but that we are not justified in inferring the presence of gout from the presence of eczema, an inference which I am afraid is often drawn. We are perfectly well aware that gouty patients are especially liable to attacks of acute bronchitis, but we do not infer on seeing a patient with bronchitis that there is of necessity a gouty tendency at the bottom of the attack.

Garrod has pointed out in the paper from which I have just quoted that in these cases of gouty eczema one cannot easily demonstrate the uric acid by the thread test, and explains this by saying that uric acid is destroyed in parts which are undergoing acute inflammatory processes. It seems, therefore, easy to understand that a wide-spread weeping eczema will naturally destroy so much of the uric acid in the blood that an attack of articular gout will be averted. Hence it would seem possible that the sudden drying up of an acute eczema in a gouty patient might be followed by an acute attack of gout, but that this should occur in the chronic forms would be in the highest degree unlikely. In this connection the researches of Colombini are of considerable interest. This

observer investigated the varying degrees of toxicity of the urine of healthy and diseased human beings when it was injected into rabbits. His results were as follows: In acute weeping eczema the toxicity is decreased, returning to normal in most cases when the eczema is cured. In chronic dry eczema the toxicity of the urine is increased, again returning to normal with improvement in the disease.

Now I think the explanation which would naturally suggest itself of these facts elicited by Colombini would be that the changes in the toxicity of the urine depend upon the state of the skin, and not that the state of the skin depends upon that of the blood as reflected in the urine. In the case of the weeping eczema a large amount of secretion is taking place from the cutaneous surface, and this naturally leaves less to be done by the kidneys; with the cessation of the discharge from the skin the kidneys have to do the whole of the work previously partly done by the skin, hence the rise of the toxicity to the normal degree. In the case of the chronic dry eczema the normal cutaneous secretion is diminished or suppressed, and hence the kidneys have to do more than their usual share of the excretory work of the body and the toxicity of the urine rises above the normal, while with the return of the cutaneous secretion the toxicity of the urine is diminished, resuming its proper degree. So that as far as it goes the work of Colombini appears rather to militate against the supposition of a toxemia as the cause of acute eczema, since were this the case one would expect to find the kidneys excreting at least as great an amount of toxic substance as normal, whereas, as we have seen, the amount undergoes a diminution.

From these results of the examination of the urine in acute eczema it would seem that if it were possible to suddenly and forcibly dry up the discharge in a patient whose kidneys were not sufficiently sound to respond to the call for a sudden increase of work, the results might be dangerous from the accumulation of toxic substances in the blood. In the case of the dry eczema it is obvious that there can be no danger in clearing the skin of the disease as rapidly as possible. Returning to the first case for a moment one would naturally wonder that with the frequency of acute eczema one does not more often see the results of this sudden suppression of the discharge than is the case. The explanation of this lies, I think, in two circumstances. The first is that in most cases of acute eczema the kidneys are fully able to excrete the normal amount of deleterious substances, which is all they are required to do; and the second is that in cases where the kidneys are not able to perform their work we find it impossible to suddenly suppress the discharge. Nevertheless, cases have been published by Brocq, Brooke, and others which tend to show that the attempts at curing a weeping rash have sometimes been followed by untoward results.

Brooke's case is so much more convincing than any of the others that I have read that I should like to refer to it here. The patient was a child suffering from an acute eczema of the head, which was treated with small doses of Fowler's solution and zinc ointment. The head got well, but the recovery of the skin was at once followed by a severe attack of bronchial catarrh. The scalp was then poulticed and the eczema reestablished, and the child recovered. The parents, however, were so anxious to have the child's head relieved of the unsightly rash that treatment was resorted to a second time, whereupon the bronchitis reappeared and the child died of what might be called metastatic edema. These cases are, however, of such rarity that one would feel almost inclined to disregard the danger from that reason alone.

But this is not the only argument in favor of treating all cases of skin disease. Bernheim in 1894 described the case of a child with a wide-spread eczema accompanied by large pustules who died suddenly in hospital. A bacteriological post-mortem was made and revealed the presence of staphylococcus pyogenes albus and vitreus in the liver, staphylococcus albus in the heart, and both staphylococci and the diplococcus albicans tardus in the brain and pericardium. Here we have, I think, a much more serious danger, namely, the risk of septic absorption or septic infection from large areas of skin denuded of its protective horny layer, and in my opinion the occurrence of one definite case of this kind is an argument for the rational treatment of all skin diseases far outweighing that for leaving them alone, based upon the supposed metastases already referred to.

The reference to this case of Bernheim's brings me to the second theory of the causation of eczema, namely, that it is a parasitic affection. Unna was, of course, the great upholder of this theory, and considered that he had found the pathogenic microbe in the so-called morococcus. He further considered

that seborrheic eczema was due to the same organism complicated by the presence of some other factor, possibly another organism. This opinion did not, I think, gain very many adherents in this country, as the balance of evidence seemed to be against it, and moreover it involved the merging of psoriasis into eczema, an arrangement to which I have already stated English authorities were unwilling to subscribe. In 1898, however, Leredde, of Paris, published a monograph on eczema in which he asserted with the utmost positiveness that eczema was a parasitic disease, and certainly defended his position very ably by what he termed histological, bacteriological, and clinical proofs. This work was, however, not to pass unchallenged, and a criticism of it has recently appeared in the December number of the *Annales de Dermatologie*, by Török, a former assistant of Unna's, and therefore one who would naturally be very familiar with his teachings. Török points out that the histological proof of Leredde falls to the ground immediately because of the fact that Unna himself expressly states that there are two varieties of vesicle in eczema, in one of which the morococcus is found abundantly, and in the other sparsely or not at all, and that any one reading Unna's description of these two varieties will at once see that the vesicle which corresponds closely to the lesion always regarded as the typical eczema vesicle is that in which the morococci are not abundantly found. For the same reason the bacteriological proof is wanting, because Unna took for his vesicle one which was clinically indistinguishable from an impetigo lesion. After carefully considering the question and reading both sides, I have come to the conclusion that much of the argument is based on the wrong use of terms. There seem to me to be at least two diseases, one of which we may call simple eczema, the cause of which is entirely unknown, and in which there is no shadow of proof of a parasitic origin, the other being the so-called seborrheic eczema, in which there is strong presumptive evidence that there is a parasitic agency, though at present an unknown one, at work. That the former may supervene on the latter is very probable, as we sometimes see undoubted eczema start on the head and attack the whole body, in cases of tinea tonsurans where the treatment with irritating drugs has been overactive. Whether the infective form deserves the name of eczema or not is a point into which I cannot enter here, but I think the name is now sanctioned by usage, and I have therefore applied it to the disease described by Unna rather than further complicate the already unwieldy nomenclature of dermatology by the introduction of new names.

Now the natural object of all medical inquiry and research should be the establishment of improvement in treatment, and it may therefore be asked, What value has all this discussion from the point of view of the patient? I think it has a very distinct value. If we can be certain in any given case of eczema that we have to deal with an attack of seborrheic origin and therefore as I believe of infective nature, we may at once try the effect of antiparasitic remedies, and therein lies the great advantage of an accurate diagnosis. In a seborrheic case, even when the process looks rather acutely inflammatory, one can often boldly resort to antiseptic treatment from the beginning with great success. If there is very great weeping one may use some mildly antiseptic lotion at first until the acute stage has passed off, such for instance as a one-per-cent solution of resorcin, and then, as soon as the discharge shows signs of ceasing, stronger applications, generally in the form of ointments or pastes, are to be applied. The drugs which I regard as most valuable in this variety are sulphur, salicylic acid, and resorcin in the order mentioned, and they can be combined if necessary in an ointment containing from ten to thirty grains of each to the ounce of base. By following these lines of treatment it will be generally found that the rash dies away with surprising rapidity. But here a word of warning is necessary. If, as is very commonly the case, the disease has spread from the scalp downwards in the classical manner, it will be found that although the scalp rapidly clears of all scaling during the actual application of the ointments, the disease begins to crop up again the moment the treatment is suspended. It is therefore advisable to continue treating the scalp long after all symptoms of the disease have disappeared.

In the treatment of what is known as simple eczema, if we consider that there is at present no proof of a parasitic origin, we shall be naturally less anxious to apply active antiparasitic treatment. It should be enough, and usually is so, to use some application which is not at all or very slightly irritating, and yet has an inhibitory action on the growth of any ordinary cocci which will be sure to gain access to the skin, denuded as it

is of its protective horny layer. There are many such lotions, and it is unnecessary to enumerate them, but mention may be made of a somewhat recent innovation, namely, a half-per-cent solution of picric acid in water. This lotion was originally introduced as an application for burns of the second degree, but has also been applied to acute weeping eczema. I have tried it in one or two cases, and I must say that I have not found it nearly so efficacious in weeping eczema as I have in cases of burns. Pastes are much favored for this stage of acute eczema by many authorities, but I am not very fond of them where the serous discharge is abundant, as they tend to form a cake on the surface and thus prevent free drainage, which seems to me to be the all-important point in the treatment of the acutely discharging diseases. Later, when the weeping has ceased, one may content oneself with simply protecting the surface with some ointment, and in this stage I do not think the composition of the ointment is of so much importance as the consistency, provided that it contains no irritating ingredients. It is advisable to use an ointment of good "body," as otherwise it soon runs with the heat of the part and soaks into the covering, leaving the skin practically dry. For this reason the unguentum paraffini of the Pharmacopœia, or Hebra's unguentum diachyli, is very suitable, while vaselin is almost useless. As soon as the inflammatory redness has disappeared, one may attempt to restore the normal condition of the skin by mildly stimulating ointments, of which a weak tar ointment is perhaps the best.

In spite of the best treatment, however, one will sometimes find that there remains a considerable thickening of the skin due to cellular infiltration of the corium, especially if there have been repeated attacks. In this case, where there remains a chronic patch of thickened skin which resists ordinary treatment, Jacquet has advised scarifying the surface and bathing with warm water afterwards to encourage the bleeding. In this method of treatment the surface must have been previously cleaned by the application of starch poultices. I have no experience of this treatment, but have usually seen these patches yield either to the old soft-soap treatment of Hebra, which I think has been unduly slighted of late years, or the constant application of salicylic acid plasters.

In resistant cases of eczema of the palms and soles the main indication is to remove the thickened horny layer, so that the drug may come into contact with living epithelium below. Jamieson has had great success lately with Unna's oxidized pyrogallic acid in such cases. He first removes the horny layer by constant starch poultices for a day or two, the surface being briskly rubbed with a rough soft towel between the different changes of poultice, and then the ointment containing the drug in a strength of one to six per cent is applied thinly to the part and bound on.

It is, of course, impossible in a paper like this to go thoroughly into the details of the treatment of such a protean disease as eczema, and I have therefore contented myself with merely referring to some of the more recent additions to our methods. The great desideratum is the knowledge of the causation of the various types, as I am convinced that in the parasitic forms one may use strong antiseptics much more boldly than in the so called simple variety.

ON THE USE OF THE TINCTURE OF CANTHARIDES IN CHRONIC PARENCHYMATOUS NEPHRITIS.

By Julius Salinger, M.D.,
Chief of the Medical Clinic of the Jefferson Medical College Hospital.

Among the diuretics that are of use in chronic renal disease, especially in the form known as parenchymatous nephritis, that have fallen into disuse, or at least into insufficient use, is the tincture of cantharides. Only in a few of our modern text-books is it recommended as a reliable remedy, having distinctive powers, especially as a diuretic. From a very large experience in renal cases, especially in the Philadelphia Hospital, where, probably, the severest forms of kidney disease are met with, the writer has come to the conclusion that not only is cantharides a valuable diuretic, but that it has also distinct curative powers. Its chief use consists in its diuretic action, when employed in small doses, so as not to produce irritant effects. A few illustrative cases selected from a large number will readily prove this assertion.

Charles Williams, aged fifty-three, white, a laborer by occupation, was admitted to the Philadelphia Hospital July 7, 1895. His family history does not contain anything that bears upon his present illness. He denied venereal disease, but admitted having used

alcohol to excess for the last ten or twelve years.

On Christmas night, 1894, the patient was on a debauch, when he exposed himself by lying out in the cold and wet, and was admitted to this hospital suffering from all the symptoms of acute nephritis. He was discharged April 27, 1895, feeling perfectly well.

One week before the present admission to the hospital, while intoxicated, he was exposed to rain and became very much chilled. His body, especially the lower extremities, began to swell, and he was in a critical condition when he was admitted to the ward. His breathing was rapid and labored, his legs and feet were enormously swollen, and the anasarca was so great that there was pitting all over the body upon the slightest pressure. The second aortic sound was greatly accentuated, and the lungs were filled with coarse moist râles. The pulse was full and bounding. The skin, especially of the face, had the peculiar yellow, waxy appearance so common to renal disease.

On admission patient was passing eleven ounces of urine in twenty-four hours. The specific gravity was 1020, color reddish, no sugar, albumin one-third by bulk. Upon microscopic examination wide and narrow hyaline and granular casts were found in abundance. The patient was extremely restless and dyspneic; in fact, he was so short of breath that it was impossible for him to remain in a recumbent position in bed. He seemed to grow worse hourly. He was unable to sleep, and furthermore was troubled by a racking cough. His nervous symptoms steadily grew worse. Delirium soon set in. He would talk to himself, and on one occasion, not being carefully watched, was found wandering about in the ward. He could no longer answer questions intelligently. Morphine, trional, chloral, and bromides were used in addition to the usual depleting remedies in order to induce sleep, but of no avail. He was given hot-air baths, his chest was dry-cupped anteriorly and posteriorly, and salines were freely administered.

Having had some experience with the tincture of cantharides as a diuretic, I ordered the following prescription:

> Liquor ferri et ammonii acetatis, f ℥ ss;
> Tinctura cantharid., ♏ ij.
>
> Given every four hours.

The kidneys promptly responded to these measures, but the dyspnea and uremic phenomena were not much relieved. Twitching of the face and convulsive movements of the muscles of the hands and fingers were noticed, particularly while the patient was delirious.

On the morning of July 7 (six days after admission) patient was very delirious; he was gasping for breath, and his face was fairly purple. His pulse was full and strong, showing high tension. It was decided to at once resort to venesection. Fifty ounces of blood was taken from the arm. Before the bloodletting was over the breathing became less labored, his mind cleared up, and he remarked, "I am feeling easier." From that time on his nervous symptoms disappeared, and he gradually though steadily improved. The same treatment was continued, the diet consisting absolutely of milk.

Three weeks after admission the edema had all disappeared. The patient felt perfectly well, although still a little weak. On July 28, 1895, he was up and about the ward. There was no cough, no dyspnea, the breathing was normal, the râles had all disappeared. The heart sounds were normal; there were no symptoms, except a slight irritability of the stomach. The albumin was reduced to the merest trace. No tube casts were found on repeated examinations. He was passing an average of seventy ounces of urine in twenty-four hours. His temperature throughout the attack had been subnormal.

August 1, 1895, Dr. de Schweinitz reported the eye ground as negative. On August 13 patient was discharged from hospital in good physical condition. The following is a daily record of his urine:

	Ounces.		Ounces.
July 1	10	July 14	115
" 2*	11	" 15	132
" 3	16	" 16	80
" 4	16	" 17	86
" 5	16	" 18§	43
" 6	53	" 19§	26
" 7†	20	" 20	78
" 8	50	" 21	76
" 9‡	31	" 22	60
" 10	52	" 23	70
" 11§	35	" 24	66
" 12	95	" 25	70
" 13	114		

Another case even more striking is the following:

James Heffem, aged thirty-nine, white, born in Ireland, unmarried, driver by occupation, was admitted on June 25, 1895. His family history gave no evidence of hereditary disease. Until two and a half years ago he had always enjoyed perfect health. He had been

* Administration of tincture of cantharides begun.
† Venesection.
‡ Large number of stools, and urine lost with feces.
§ Urine lost with stools.

a habitual user of beer and whiskey, and used tobacco freely. He denied specific history. In December, 1892, while at work driving a team, he noticed that his feet, and later his legs, began to swell. He also became short of breath, which incapacitated him for work, and he was admitted to the Philadelphia Hospital, where he remained for eight weeks. He was discharged much improved. Since then he has been in the institution three times with the same trouble. He came the last time on January 25, 1895, suffering from marked dyspnea, which became extreme on the slightest exertion. His heart was so weak that the apex beat was not visible, nor could the heart sounds be heard. Percussion showed the cardiac dulness to be much increased, and other physical signs showed the presence of hydropericardium. His lungs were full of moist râles, except at the base, where there was evidence of hydrothorax. On account of the dyspnea he was unable to sleep except for a few moments at a time. His feet and legs were greatly swollen, and his serous cavities showed evidences of effusion.

On admission patient was passing from ten to thirteen ounces of urine in twenty-four hours, specific gravity varying from 1010 to 1020, albumin one-eighth by bulk, and hyaline and granular casts were found in great abundance. His temperature was 97°, pulse 120, respiration 40, and throughout the whole course of his disease his temperature was slightly subnormal. On admission he was more or less delirious; he muttered and talked to himself or to unknown persons. Three days after admission he had a uremic convulsion, for which he was given a steam bath for one hour. During the bath he perspired profusely. His nervous symptoms were relieved, his kidneys resumed action, and he entered upon a rapid and uninterrupted recovery.

Patient's diet consisted of milk alone. He was given the following prescription:

> Tinct. cantharid., ♏ ij;
> Liquor ferri et ammonii acetatis, f ℥ ss.
>
> Given every four hours.

The dropsical symptoms were speedily relieved, and in one week's time he was passing 125 ounces of urine daily.

On July 25, 1895, the dropsy had all disappeared. He had been up and about the ward for three weeks and was feeling comparatively well. His urine was normal, and no albumin could be found in it by either nitric acid or heat test. His heart was still weak, but the sounds could be heard distinctly. There were no murmurs. The respiration was normal; there was no cough or dyspnea. The following is a record of the urine:

	Ounces.		Ounces.
June 25*	10	July 9	94
" 26	13	" 10	86
" 27	40	" 11	77
" 28	72	" 12	70
" 29	38	" 13	69
" 30	58	" 14	77
July 1	58	" 15	96
" 2	76	" 16	70
" 3	124	" 17	82
" 4	125	" 18	84
" 5	114	" 19	48
" 6	98	" 20	73
" 7	76	" 21	86
" 8	78	" 22	116

Many more cases could be quoted, showing similar good results. The cases are given in detail because the symptoms were urgent, and the results obtained so beneficial. In the writer's opinion the tincture of cantharides administered in small doses (so as not to prove an irritant to the kidney) holds one of the chief places as a diuretic in renal diseases. Care, of course, must be used in giving the remedy in small doses, as overdoses readily prove irritating to the renal substance. Senator, in Nothnagel's "Specielle Pathologie und Therapie," vol. xix (Die Erkrankungen der Nieren), page 64, says Bayer and some of the older authors specially recommended tincture of cantharides, but he does not advise it, as in his experience, after other diuretics had failed, he had never seen any benefit from it.

This is, of course, entirely at variance with the cases just cited, and altogether different from the results obtained by me in the treatment of a large number of specially severe cases of chronic parenchymatous nephritis.

THE CARE OF THE TEETH DURING SICKNESS, AND THE PHILOSOPHY OF LANCING CHILDREN'S GUMS, FROM THE STANDPOINT OF THE DENTAL PRACTITIONER.

By Joseph Head, M.D., D.D.S.

It seems to be the province of a dentist, in addressing a medical body, to call the attention of the fraternity to the injury that is constantly being inflicted on teeth by the careless administration of drugs. This arises from the fact that the teeth do not rank as vital organs, and therefore no dentist, how-

*Administration of tincture of cantharides was begun.

ever devoted to their preservation, would say that cases might not arise in which they should be sacrificed to the welfare of the general system. For instance, in syphilis and other conditions of equal importance no one can doubt that mercury, given to the point of salivation, is sometimes essential; but the dentist is frequently brought face to face with the proofs that teeth have been sacrificed when no such necessity existed.

It seems to me that in the administration of acid medicines carelessness prevails, and when precautions are taken, in most cases they are ineffectual. By precautions I allude to the use of the glass tube, or the mixing of the acids with syrups, glycerin, or other bland fluids. The glass tube is ineffectual because some of the acid invariably creeps around the root of the tongue, and rests in the floor of the mouth; and the syrups and glycerin, though seemingly palliative, really only modify the action of the acids through their viscidity.

The only sure method of obviating danger to the teeth from the use of acids is by means of alkaline washes held in the mouth after the acid has been swallowed, and it should be swallowed as rapidly as possible. This absolutely prevents injury, as the acid is thereby neutralized before it has penetrated the mucous coating of the teeth. A solution of bicarbonate of soda is most efficient.

It is quite frequently the case that teeth have been not only roughened, thus making them accessible to the germs of decay, but riddled with cavities by the administration of acids during transient illness. Decay always starts with an acid dissolution and roughening of the tooth surface, whether this acid comes from fermentation of carbohydrates, colonies of bacteria, natural secretions, or medicine. In fact, tooth structure is so wonderful and beautiful a substance that nothing can start its dissolution excepting mechanical injury or acids.

A dentist who has guarded the mouth of a child from infancy, prevented crowding, strengthened weak places, taught habits of care, has a right to hope that the child at the age of fifteen will suffer little in the future from its teeth, and when after a temporary illness the same child is brought to him with the teeth so injured by medicine as to cause indefinite trouble for the future, he realizes that a great wrong has been committed, and a wrong that could have been easily prevented.

It must also be remembered during sickness that, owing to the fermentation of carbohydrates, colonies of bacteria, and perverted secretions, acids may arise which will be little less effective in destroying tooth structure than medicinal acids. For these reasons, when a patient has any disorder that inflames the mucous membrane, the following precautions should be taken: The mouth should be rinsed with a mild antiseptic wash every four hours. This should be held about the teeth not less than two minutes. When the patient is sufficiently strong to bear the exertion, the teeth should be brushed morning and evening. Evening is the time of greatest danger to the teeth, as the acid mucus during sleep, unless neutralized, will have eight hours of uninterrupted opportunity to attack the enamel. Therefore it would be wise, in addition to the brushing, to rinse the mouth with a teaspoonful of Phillips' milk of magnesia, which will preserve the alkalinity until morning. Should milk of magnesia produce nausea, as sometimes happens, a small piece of lump magnesia soaked in three-per-cent pyrozone will be an efficient substitute. This can be chewed thoroughly and ejected, when the small particles adhering between the teeth will effectually neutralize the acids of the mouth during sleep.

And now for a word or two on the philosophy of lancing the gums of teething children.

When the tooth is ready to erupt it lies in a bony cavity. The crown is fully formed, but the root is unfinished. The lower portion of the root is composed of soft dental pulp that has not yet finished its work of creating the tooth bone that is to give the tooth firm anchorage in the jaw. The alveolar process above the crown melts away by absorption, and the tooth rises up, but when the crown reaches the elastic gum, back pressure at once results, and the tooth is cruelly forced back on the nerve. If the nerve has sufficient vitality, the child suffers no inconvenience and no interference is necessary; but if three or four of these nerves, as frequently happens, receive back pressure at the same time, the irritation becomes manifest. The inhibitory centers are overpowered and the child suffers.

The remedy of course is simple. The gum should be cut down to the tooth, when the pressure will be at once relieved. With molars and canines it should be a cross-cut; with the incisors the incision should be made along the cutting edge of the tooth; but, above all, it must be remembered that the

tooth capsule must be entirely cut through or the pressure will continue.

The lower central incisors come about the sixth month; the upper centrals and upper lateral incisors come at the seventh month, followed rapidly by the lower lateral incisors. The first molars come at the twelfth month, the canines at the eighteenth month, and the last molars come about the end of the second year.

Should the child be well and happy when the teeth are expected, no surgical interference is necessary; but if at this time the child begins to drool, and its bowels become unexplainably deranged, lance where the teeth are expected and lance thoroughly. Do not wait for the gum to bulge or to become inflamed, for the child is already suffering the most terrible toothache and cannot explain. A grown person suffering such pain would bombard the dentist with supplications until relief should be obtained, but the poor little one is only too often left to its fate with the philosophical remark: "Let us not interfere with Nature; teething is a physiological process."

I feel like apologizing for dwelling on such well known facts, and especially to my esteemed teacher, Dr. Starr, who lectured so well on the treatment of teething children at the University when I was taking my course there, but the great diversity of opinion on this subject must be my excuse.

It is most embarrassing to hear patients say that their doctor will not lance the baby's gums because the scar will make the gums hard and thereby render the teething more difficult. What is one to say? Scar tissue of all tissue yields most readily to pressure. Then another doctor says he will not lance because the gums are not inflamed. How would a grown person under these conditions like to wait?

One gentleman actually read a paper before our dental society in which he claimed that the pain of teething was caused by septic poisoning of the inflamed gum, and his remarks may be classed with the other crimes that have been committed in the name of bacteriology.

I should also like to protest against the practice of rubbing the teeth through inflamed gum with pennies, thimbles, or similar substances; also against the hard-rubber teething rings which the little ones use in desperation for a momentary relief to the congestion.

In all of these teething disturbances the lancet should be used and used thoroughly. When the gum heals enough to make back pressure it should be reopened, even if the operation has to be repeated several times for each tooth. The intervals of rest for the little patient will make it well worth while. By means of the sharp lancet, judiciously used, and with proper hygienic care in other respects, the gums need never become inflamed, and the disorders incidental to the teething of infants can be in most cases prevented.

TREATMENT OF ISCHOCHYMIA.

By A. L. Benedict, A.M., M.D.,
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In all grades of the motor troubles of the stomach included under the general term "ischochymia," two indications must always be kept in mind—the weakness and distensibility of the stomach. Although the classification looks to the muscular coat, the condition of the mucous membrane must be accurately known and carefully treated. In most cases hydrochloric acid is deficient or wanting. In the lower grades this deficit may be regarded as usually functional, in the higher grades as usually due to some form of gastric catarrh, and in obstructive dilatation as often cancerous.* Dilatation with chronic gastric catarrh is frequently the accompaniment of cardiac disease or hepatic sclerosis, producing venous stasis in the stomach. With the cardiac disease, or independently, renal disease may exist and may transform the stomach into an eliminating organ. In stomach contents brought to the writer from an out-of-town case, the urinary odor was present, there was effervescence with hypobromite solution corresponding to 3:1000 parts of urea, and a slight precipitate of urates. Experience can never do away with the necessity of carefully noting the exact condition in each case.

Many contraindications are opposed to indications, so that the physician is repeatedly compelled to steer between Scylla and Charybdis. The dilated or sagging stomach needs rest, but it also needs gymnastics; small and infrequent meals will spare the stomach, but at the cost of general nutrition, on which ultimate recovery depends; quickly

* Non-malignant pyloric obstruction with *relatively* good motor power is usually attended with normal or even excessive secretion of HCl.

digestible foods are apparently demanded, yet these tax the stomach, which is weak, and spare the intestine, which is usually strong; liquid and semi-liquid foods are most easily digested, but they are apt to be too bulky, while dry, concentrated nourishment may fail to pass through the stomach. Water, as a beverage or introduced through the tube, is needed to wash food remnants and mucus from the stomach, yet in too great quantities it weighs down the fundus and aggravates the trouble.

Diet.—This subject, on account of the conflicting indications, depends largely on empiricism. If the patient can be kept in bed for a week or two, so as to reduce the demands of the system to a minimum, marked reduction of a dilated stomach can usually be obtained by giving that organ physiologic rest, while feeding by the rectum. The enemata used to cleanse the rectum usually furnish nearly all the water needed. Mild astringents and antiseptics such as subcarbonate, subgallate, and salicylate of bismuth, salacetol, benzonaphthol, etc., may be administered by the mouth. If, for any reason, this course is not feasible, and the patient can abstain from mental and physical work, the best plan is to give morning and evening meals—using hydrochloric acid and papoid or pineapple for digestants rather than pepsin—and resort to lavage a few hours after the evening meal, as necessary. With the use of digestants and such stimulants as strychnine—mainly directed toward the muscular coat—and pilocarpine (.002 or .003 A. C. to increase the secretion), almost any stomach, unless the dilatation is due to organic obstruction, will act fairly well, and may not require lavage oftener than every week or as indicated by malfermentation. If the patient cannot sacrifice his business interests, it is better to allow a light luncheon of peptonized milk and toasted crackers than to divide the necessary bulk of food into only two parts.

Milk is not a proper diet for a patient with motor weakness of the stomach, on account of the bulk of an adequate ration and the formation of curds. The possibility of tubercular infection must also be considered. The lack of hemoglobin and other constituents of meat is a contraindication to milk diet not often enough realized by physicians. The pale, shivering, atonic wretches who have been kept on milk diet for months while pursuing their ordinary business, are monuments of self-denial and dietetic heroism and of professional laziness and stupidity. Milk is, however, an almost indispensable article for combination with other foods and for occasional use. If the patient can eat eggs, the problem of diet is much simplified. Beside the ordinary culinary preparations, they may be used as omelet—with or without meat, jelly, etc.—German pancake, salt or sweet; raw, boiled, and baked custard, salt or sweet; egg-water, etc. As at least a dozen eggs daily are required for even moderate nutrition, it is not wise to depend upon them exclusively. The physician must also bear in mind that between a theoretically perfect but monotonous regimen and a varied diet which includes waste matter and even slightly injurious substances, the latter is to be preferred.

Some of the worst cases that the writer has seen have been subjected to a rigid diet, and, as the patients express it, the more they diet the more they have to, and they become as miserable on the restricted regimen as they were before on the most careless choice of food. Heart, crisp salt pork, ham, toasted raw codfish, and all sorts of salt and smoked meats, if not greasy nor too dry, are articles of diet which may be better digested than apparently superior meats. Salt is almost always indicated to aid the hydrochloric secretion. Cereals may be used in moderation. Oatmeal is seldom allowable, as the scales tend to remain in the stomach. Wheat foods must be rejected for the same fault. Farina is excellent, and many preparations of corn, without the seed-coats, may be used. Freshly popped corn—rejecting the scaly parts—is very digestible and contains nearly as much proteid matter as oatmeal. Good soda crackers or saltines may be used, and it is better that all breadstuffs should be dry and toasted. Zwieback seems to be no better than any other stale toast, but it must be remembered that fresh bread, brown on each side and sticky in the middle, is not toast in the dietetic sense. The patient should be warned against heavy vegetables, such as onions and cabbage, against hard parts of all fruits and vegetables, against cakes, pastry, and hot breadstuffs, against tea and coffee—unless used very weak—and against eating or drinking anything so that the stomach shall have more than half a pint or, in mild cases, a pint of contents at once. Water must be taken liberally, to the extent of about two quarts a day—including other beverages, but not water introduced in solid food—but preferably in amounts of not

more than 100 cubic centimeters at a time. Good candy is very nutritious, representing carbohydrate food in condensed form. It will not usually cause distress if the stomach is kept aseptic by hydrochloric acid or, occasionally, aromatic antiseptics, and will not prevent the taking of other food if used as dessert.

After discontinuing rectal alimentation, an excellent diet consists of pancreas sandwiches and pure chocolate candy, but this should not be continued more than a few days without relieving the monotony with eggs and meats. The physician should make sure that the true pancreas is used. Most butchers furnish the thymus or thyroid for sweetbread, and if impressed with the necessity of obtaining the abdominal sweetbread, they may supply the spleen. Beside looking after the quality and quantity of the food, the physician must be careful that rapid eating does not introduce too much air into the stomach, and that foods, proper in themselves, do not ferment. The formation of gas in the stomach tends to stretch the weak muscle and calls for peppermint and other antiseptics, digestive aid, and charcoal as an absorbent. The latter is often given in inefficient dose. It should be thoroughly dried and should be given in not less than half a teaspoonful dose. In judging the thoroughness of gastric digestion, it must be remembered that none of the artificial ferments will accomplish what is claimed for them, and that there is always some residue. For example—as was frequently illustrated by one patient in particular—six hours after a light luncheon the washings may contain a bulky foam consisting mostly of mucus, but containing enough starch or albumin to give the usual tests, and retaining a strong odor of chocolate or any similar aromatic food or beverage. Yet the stomach may be practically empty, and this residue may really be insignificant.

Of late much has been written regarding starch indigestion, both by men obviously influenced by commercial motives and by those who are sincere but whose knowledge of physiologic chemistry is rudimentary. Much of the discussion regarding salivary insufficiency reminds one of the ancient philosophers who argued that a pail of water in which a fish floated should weigh no more than the same pail without the fish. Ewald was unable to find a case of salivary insufficiency, though he examined febrile patients and those with extreme dental caries and oral cancer. If the writers on this subject will experiment with saliva, starch paste, and iodine, they will come to the conclusion that they are on a more hopeless search than was Diogenes. Why, then, does starch indigestion occur, if salivary insufficiency does not? For the simple reason that very few persons masticate and insalivate their food properly. Starch which simply does not digest in the stomach (as in cases of hyperchlorhydria) need do no harm, as normally the bulk of starch digestion is reserved for the pancreas and intestine. Starch or maltose which lies for some time in a foul stomach must ferment —the indication is to keep the stomach clean, not to digest the starch, unless there is evidence of intestinal failure.

In a case of atony or of moderate dilatation or gastroptosis, slight regulation of diet and medication directed toward chemical digestion, malfermentation, motor weakness, and general lack of tone are usually sufficient. Tonics must be given cautiously, and frequently cannot be administered in the very cases which most need them. Phosphorus and cod-liver oil can rarely be given to advantage. Unirritating forms of iron, such as reduced iron, Eisenzucker, Blaud's pill, etc., may be given for a week and then discontinued, to be resumed as needed. Arsenic is often of more service than iron, especially if there is need of an antiseptic. Strychnine is practically always indicated to stimulate the gastric muscle, and should be given before meals in about .002 dose. All things considered, it is also the best cardiac tonic, but digitalis and strophanthus may be particularly indicated in some cases, and are best given in tablet form to avoid irritation. Strychnine may well supplant all the simple bitters. Menthol or allied volatile oils and stearoptenes may be used both to excite secretion and as antiseptics. Pilocarpine .002 may be alternated with strychnine, for its more specific stimulation of secretion.

The Tube.—In any severe case of failure of motility, the resulting stagnation requires direct cleansing of the stomach. Too often we encounter some such statement as the following: "The patient did not improve while on bismuth and soda, so I tried muriatic acid and gentian; then I gave lactic acid and nux vomica. Meantime he had taken large quantities of pepsin, and all without benefit, so I washed out the stomach." It ought to be understood what the tube is to accomplish before the stomach is interfered with, and the failure of previous

measures has nothing to do with its availability, unless to convince a recalcitrant patient. In the treatment of the conditions discussed in this paper the tube is indicated to remove fermenting remnants of food and thus allow physiologic rest—rarely to allow the escape of gas—as well as to cleanse the stomach, and for the purpose of stimulating and healing the gastric wall, by hot baths and medicaments. The too frequent use of the tube abstracts needed nutriment, and the careless introduction of large quantities of water aggravates the condition present.

It is especially in cases of chronic gastric catarrh with dilatation that patients form the habit of using the tube themselves. Such patients empty the stomach at the slightest provocation, not realizing that a moderate amount of fermentation is better than starvation with a clean stomach; they are also usually careless as to the amount of water employed, and, if they use soda to dissolve mucus, they may leave injurious quantities behind. A very practical objection to allowing patients to use the tube is that they soon get to regard the physician as a general adviser, incompetent to order the detailed conduct of their case. With the means of immediate relief always at hand, they will, as a rule, neither refrain from lavage when so directed, nor persevere in the tedious regimen necessary to a cure.

During lavage, particles of food are apt to act as ball valves, allowing the entrance but not the exit of water. Thus, both the inflow and the outflow must be measured in convenient receptacles to avoid accumulation of fluid. However, unless the stomach is absolutely quiescent, a deficit must be expected, about a liter being passed on to the intestine —or perhaps partly absorbed—during one séance. The tube must also be drawn up occasionally to allow the escape of air, a little of which is introduced at each filling and which will accumulate so as to cause discomfort and even strain of muscle, if this precaution is not observed. It is not always possible thoroughly to cleanse a dilated stomach at one sitting, and usually it is not wise to attempt lavage oftener than every day. Turck's soap or soda may be used to remove mucus and débris, and the latter must be suspended by introducing the water rapidly from a height of three or four feet, the introduction being immediately followed by withdrawal. This maneuver must be repeated at least a dozen times in an obstinate case. The difficulty of removing the cellulose and other débris from the fundus has suggested to several clinicians the use of a double-flow tube. But neither the Y-tube invented in Germany, and reinvented in this country, nor the passage of a small tube within the ordinary stomach catheter, nor the passage of two small rubber tubes side by side, has proved efficient, on account of the narrow space available. The only practical expedient seems to be to include the inlet tube in the wall of the largest sized stomach tube (No. 12 caliber). Unfortunately, the writer has not been able to find an instrument-maker who could put this suggestion into execution. At present, the most practical way around the difficulty is to siphon off the residue while still agitated by the sudden introduction of water.

While the tube is effective as a cleansing agent if lukewarm water is used, water as hot as can be borne stimulates the muscle to contract and indirectly aids the local circulation, and hence the secretion. The alternate pressure and suction upon the stomach also act as a sort of gymnastics. But a gas, on account of its lightness and its expansibility in all directions, affords a better means of exercise than water, however carefully manipulated. Thus, after cleansing the stomach and stimulating it with hot water, the writer practices distention of the organ by means of a bulb. As there is a joint indication for a carminative, the gas usually employed is an oily vapor of menthol or some similar drug. Turck has invented a bag of rubber dam for the sake of preventing the contact of air with the gastric mucosa during this kind of gymnastics, but the device, ingenious as it is, rather detracts from the benefit of the method when medicated vapor is used. At some séances there may be noted a considerable formation of mucus in the stomach—esophageal mucus is easily excluded by its stringy appearance—and in these instances it is wise to substitute for the vapor treatment the introduction of an astringent solution. Silver nitrate may be used, but fluid extract of hydrastis is safer and may be used in more efficient strength, about 10 cubic centimeters being introduced and then diluted with about 250 cubic centimeters of water, posture being employed to get the solution into contact with all parts of the stomach. It is extremely doubtful if the astringent has any effect on the muscular coat.

Turck's gyromele, to stimulate secretion and also motion on the part of the stomach,

is an instrument which the writer has rather feared to employ, though theoretically valuable. Electricity, as shown experimentally on dogs by Turck and on rabbits by Meltzer, does not produce contractions of the stomach unless under conditions—such as application of one pole to the peritoneal surface—which cannot be duplicated therapeutically. Einhorn, however, experimenting mainly on frogs, claims that something may be accomplished in the human subject, as by using both electrodes within the stomach. His observations, on the whole, confirm those of Turck and Meltzer. The writer some time ago abandoned intragastric faradization from purely clinical impressions as to its uselessness. In a recent case the patient rather urged the use of endogastric faradism. Accordingly, an insulated copper wire was enclosed in a very small rubber tube and passed through the stomach-tube, emerging through a pin-hole opening just below the rubber funnel. A simple manometer was extemporized and connected with the stomach-tube, the unions being air- and water-tight, in spite of the pressure of the electrode. The external electrode was placed sometimes over the stomach, sometimes in the hand. Although variations of gastric pressure could be plainly seen when the patient gagged or breathed, not the slightest movement was evident during faradization. After several trials the patient became convinced of the practical worthlessness of electricity in the stomach.

The frequency with which local treatment of the stomach is needed varies with each case. Cases of simple atony and mild prolapse often require no local treatment; moderately severe cases of ptosis may react favorably to medicinal and dietetic treatment after one or two passages of the tube; marked cases of ptosis and average cases of dilatation require weekly or semiweekly séances at first, with gradual lengthening of the intervals as a cure is approached. The worst forms of dilatation need almost daily lavage, unless fed by the rectum.

Mechanical Treatment.—The writer has elsewhere raised the question whether the improvement in digestion and assimilation often noted in the middle of pregnancy is not due to the support of a prolapsed stomach by the rising uterus. That the stomach is lifted upward by the uterus, quite directly in the late months of pregnancy, indirectly through intestinal pressure in the middle months, is indubitable (see illustrated article in *Medicine*, 1897). When we reflect how common gastroptosis is in women—some authorities claim that it occurs in ninety per cent of miscellaneous series, the writer finding sagging of the greater curvature, including cases of gastroptosis and dilatation, only in about fifty per cent of digestive cases—and how frequently the nausea and vomiting of the early months of pregnancy are followed by a restoration of the gastric function, not only to the level which it held at conception, but to a normal which the patient has not known for years, the theory that the pregnant uterus may act as a pessary to the stomach gains credence. However, the writer has not the experience with pregnant patients necessary to establish its truth.

The usefulness of artificial supports for the stomach is doubtful. They cannot be applied from below, and a binder, unless very carefully adjusted, will press the stomach downward and backward instead of upward. The interference with intestinal motility may also more than counterbalance the benefit of supporting the stomach. Thus the binder, elastic or otherwise, should be left for cases of hernia, extreme obesity, diastasis of the recti, genuine visceral ptosis, etc. The suspension of garments so as to avoid pressure and dragging must also be considered.

Massage, particularly deep upward kneading of the abdomen, is of value, though futile without internal and local treatment of the stomach.

Surgical Treatment.—Rosenheim has reported several cases in which the inability of the stomach to push its contents through the pylorus was remedied by gastrojejunostomy. In most of the cases the trouble was a malignant growth at the pylorus; in one or two it was non-cancerous. Temporary restoration of motor function followed in all, the stomach contents being expelled in waves through the artificial pylorus, closely imitating the natural process. The malignant disease was delayed for about a year, on the average. Gastrojejunostomy seems also to be indicated in obstinate cases of motor weakness of the stomach, without actual obstruction at the pylorus.

Gastrorrhaphy, or the infolding of a portion of redundant stomach wall, has been practiced a few times for excessive dilatation. Bircher reported three cases in 1891; Weir, one in 1892; Borelius, one in 1895, which relapsed and was then relieved by gastroenterostomy. The question as to the disposition of the infolded portion, the fact that the trouble is essentially motor weakness and

not excess of tissue, the tendency to relapse, the fact that cure depends on concentration and stimulation of muscular fibers and that many are sacrificed by the process of infolding—these considerations, as well as the danger of the operation, tend to throw gastrorrhaphy into disfavor.

Ventral fixation of the stomach is a necessary step in gastrostomy. The writer does not know of its employment as an independent operation. Nothing but experiment can determine whether the obvious disadvantages of interfering with the free movability of peritoneal organs can be outweighed by suspending the fundus of a large or sagging stomach. Gastropexy would be theoretically superior, especially if a relaxation of ligamentous support could be demonstrated by diaphany or otherwise. But the mechanical difficulties of such an operation would be almost insuperable.

Karewski quotes Hahn as recommending jejunostomy rather than gastrostomy in certain cases of cancer of the cardia. From theoretical considerations—and there is too little practical experience in this department of surgery to dispense with inductive reasoning—the same operation would seem to be indicated in preference to gastrojejunostomy, in cases of dilatation of the stomach from malignant disease at the pylorus. The establishment of an artificial anus in rectal cancer is well known to be of benefit not only to prevent obstipation, but to render the development of the tumor slower, by doing away with the impact of feces. Certainly, the less a cancer is stimulated, either mechanically or chemically, the less rapidly will it grow. Even if there were no question of obstruction at the pylorus, jejunostomy might be indicated to afford physiological rest to a stomach with a cancer on the wall. By an ingenious modification of the inlet Karewski claims to have done away with the troublesome leakage from an ordinary jejunal fistula. Thus his operation may be considered in the treatment of obstinate cases of non-malignant dilatation, certainly as an alternative for gastrojejunostomy. Some surgeons prefer the gastric operations through a misconception of the value of digestion in the stomach. In most cases of severe dilatation and in advanced cancerous disease—that is, in nearly all cases of this general nature in which surgery is to be thought of—the digestive power of the stomach is practically nothing, while malfermentation and autointoxication from the gastric contents is almost inevitable.

Quite recently Einhorn and others have reported cases and have published arguments regarding the various operations to be considered in ischochymia. In general these operations are directed toward the cause of a stenosis rather than toward the motor apparatus of the stomach. Pylorectomy for cancer, some few other tumors, and ulcer, has been performed and is the ideal operation in such instances. In other instances the loosening of adhesions, pyloroplastic operation, or similar interference with the duodenum, is indicated. Whenever the radical operations are not feasible, gastroenterostomy is an easier alternative and one that presents a comparatively low mortality and an opportunity for several months of comfortable existence. Jejunostomy does not yet attract the attention which, on theoretic grounds, it deserves.

ORGANOTHERAPY IN GYNECOLOGY.

By W. A. Newman Dorland, A.M., M.D.

ORGANOTHERAPY IN INOPERABLE CARCINOMATA.

Equally as interesting as the history of the rise and development of ovarian organotherapy as practiced to-day, and just as unique, is the record of the influence exerted by organotherapy upon inoperable carcinomata of the genitalia and mammary glands.

The honor of having first directed the attention of the medical world to the efficacy of the proposed plan of treatment belongs to a Scotch physician, Dr. George Beatson,* who in an admirable paper presented at a meeting of the Edinburgh Medico-Chirurgical Society in 1896 suggested that the exciting cause of carcinoma of the breast lay in some pathologic condition of the ovaries. His suggestion was based, primarily, upon the undoubted, though occult, relationship existing between the genital organs and the breast; and, secondarily, upon the fact that the breast is one of the most frequent seats of cancerous disease. It is well known that impregnation and gestation exert a profound influence upon the mammæ, resulting in a marked but normal evolution of those organs; and Beatson claimed that it was not unreasonable to assume that in like manner an abnormal stimulus originating in the ovaries might afford an explanation for the development of mammary carcinoma.

* *British Medical Journal*, vol. i, 1896, p. 1386.

Scouting the parasitic theory of carcinoma, as supported by Korotneff and others, Beatson held that the so-called cancer cells would eventually be demonstrated to be in reality germinal epithelial cells. Advancing one step further, he concluded that if it be true that epithelial cells in the ovary and the testicle become germinal cells through some influence in these organs, then by natural sequence extirpation of the ovaries or testicles would exert an inhibitory influence on the proliferation of epithelial cells. Instituting at once a series of investigations upon the human subject on the lines thus laid down, he proved conclusively that removal of the ovaries does undoubtedly influence the growth of carcinoma, though whether only temporarily or not he could not state absolutely. The cases reported by him were, briefly, as follows:

A married woman, aged thirty-three years, had given birth to two children, the elder being three years and the younger one and three-quarters years. During her first lactation there developed a painless tumor in the outer half of the left mamma, which remained stationary in size until her second lactation twenty months subsequently, when it commenced to grow, but was not examined by a physician until ten months later. At that time it measured five by three and a half inches, and had invaded the skin in several places, one of the nodules having ulcerated. The breast was at once removed, but recurrence took place almost immediately in the line of scar tissue, forming a mass adherent to the chest wall with a chain of nodular formation extending into the axilla. Thyroid extract was immediately administered, Beatson regarding it as a poweful lymphatic stimulant, but no good results were noticed, although the treatment was persisted in for a month. At the expiration of that time a double oophorectomy was performed, and one month later the thyroid medication was renewed. In one week's time—or five weeks after the castration—the cancerous masses were smaller and less vascular. In four month's time, the patient taking twenty grains of thyroid extract daily, the main nodule had become a mere yellow lamina not raised above the skin, the axillary growths were smaller, thinner, and yellowish, and the general condition of the patient was excellent. In February, 1896, eight months after the castration, no trace of the cancerous disease could be found, and in June, 1897—two years after the oophorectomy—the patient remained in a healthy condition.

The second patient was a married nulliparous woman, thirty years of age, a chronic alcoholic, who presented a large tumor of the right breast of five and a half years' duration. The skin was adherent and there was marked axillary involvement and an extension of the disease to the cervical glands, which was associated with more or less stiffness of the neck and jaw. Double oophorectomy was performed, and nine days later thyroid extract was administered in daily doses of ten grains. The pain in the growth had ceased at once after the operation, and at the expiration of two months there was noted a marked decrease in the size of the tumor. The patient then resumed her alcoholism and discontinued the thyroid medication, with a resultant increase in the size of the growth, as noted at the end of six weeks' time. The thyroid treatment was then resumed in daily doses of fifteen grains, with slight improvement, but death eventually occurred from secondary deposits in the liver. In this case it is probable that a more favorable result would have followed an earlier resort to the treatment.

In three other cases of inoperable carcinomata of the breast Beatson noticed a trifling improvement in the local condition, though of but short duration, and consisting mainly in relief of pain and in a lessened vascularity of the growth.

The announcement of this theory of the value of organotherapy in inoperable carcinomata, together with its clinical demonstration, startled the scientific world and at once opened up an interesting and suggestive field for further and more extensive exploration. Stanley Boyd* was the next to make a careful study of the new proposition. He applied the treatment in five suitable cases, as follows:

The first patient, aged forty-five years, was suffering from a recurrence of carcinoma in the left breast, the original disease having appeared three and a half years before, and the recurrence being of two years' duration. The growth was adherent to the chest wall at one point, and there was a slight axillary involvement. An extensive operation was attempted, but the entire growth could not be eradicated, whereupon the wound was closed, and five months later a double oophorectomy was performed. The immediate result of the latter operation was relief of pain. At the end of a week the vascularity of the nodules

* *British Medical Journal*, Oct. 2, 1897.

was lessened, and the general fulness in the pectoral region was much diminished. After four weeks there were noted loss of all pain, reduction of the general swelling and hardness, diminution of the vascularity of all the lesions, disappearance of the red scar-like patches, and disappearance of induration from the floor of the depression resulting from the primary extirpation of the gland. In six months there was practically a cure of the cancerous condition.

The second patient was thirty-seven years old and single. She presented a carcinomatous involvement of the right breast of but three months' duration, although of extensive growth, with adherence to the pectoral muscles. The axillary region had been invaded. A radical operation was performed, but eleven months later the patient returned with a recurrence of the disease in the scar tissue and in the axilla. The patient was thin and anemic, and her general condition was poor. A double oophorectomy was performed, and improvement in the cancerous growth was noted in a week's time. At the end of a month both flesh and color had decidedly been gained. In thirteen weeks the patient had gained eleven pounds, and in twenty-four weeks there was marked improvement in both the local and general manifestations, although the disease was not entirely eradicated.

The third patient had had her left breast removed for carcinomatous disease and had suffered a return of the growth within two years. This continued to develop slowly for four years, by which time there were noted great emaciation and prostration, with pains in various regions of the body, and symptoms of secondary involvement of the liver. Double oophorectomy was performed, and was followed immediately by alleviation of the pain and some diminution in the size of a sternal ulceration, but death occurred fourteen weeks after the operation from the secondary growth in the liver.

The fourth patient was sixty-four years of age and was suffering from extensive cancerous disease of the right breast. Double oophorectomy was performed, but the ovaries were found to be so excessively atrophied that it would be difficult to conceive that they discharged any function or exercised any influence at all upon the rest of the tissues. As was expected, therefore, no improvement followed the operation.

The fifth patient, aged forty-five years, presented a large tumor of the left breast with marked affection of the axillary glands, but associated with a good general condition. Double oophorectomy was performed, together with a wide operation upon the breast and axilla. Three months later the patient was to all appearances in a condition of absolute health.

Boyd thinks that it is in the highest degree improbable that the relationship between the oophorectomy and the atrophy of the cancer masses is other than causal, although he fails to offer an explanation as to the *modus operandi*. His "working hypothesis is that the internal secretion of the ovaries in some cases favors the growth of the cancer, acting either upon the epithelial cells or upon the surrounding tissues; consequently, in these cases, removal of the ovaries will leave the tissue better able to cope with the parasitic cells."

It was but a step further to conclude that the operation of oophorectomy might just as well influence similarly cancers elsewhere than in the breast, and at the suggestion of Dr. Boyd the treatment was applied in a woman of thirty-five years suffering with extensive cancer of the cervix and vagina. No atrophy of the growth occurred, but the vagina became much more lax, so that examination could be made more readily. Other investigators quickly adopted the method, with varying results. F. Hobday,* of the Royal Veterinary College, obtained definite results in three cases in which the operation was performed upon bitches suffering from offensive papillomatous cancer of the vagina. The idea that ovariotomy might be of value in these cases was strengthened by the observation that during the period of œstrum the tumors appeared to grow more rapidly and the discharge to increase in amount. In one instance a normal condition of the vagina developed within a month's time, and in another the discharge ceased entirely. In the third case, in which the tumor was not primarily curetted, no improvement was noted.

W. Watson Cheyne† operated upon two cases of mammary carcinomata with but temporary success. In the first case, a woman aged thirty-four years, there was a steady improvement for six months, with lessening of induration and diminution in the size of the cancer nodules. The patient was given thyroid tablets irregularly during this period.

**British Medical Journal*, July 17, 1897.
†*British Medical Journal*, May 7, 1898.

The growth ultimately assumed renewed activity, and the downward course was progressive. The second case, a woman thirty-two years of age, did not show any improvement worth noting subsequent to the oophorectomy. In the light of his meager results Cheyne suggests that not only should the ovaries be excised, but as much as possible of the morbid growth should be removed at the same time, in order to afford the patient the best chance for absolute recovery. He says that it is quite probable that if too much cancer epithelium be present the removal of the ovarian influence might not produce sufficient alteration in the body to overcome all of the disease.

G. Ernest Herman* emphasizes the fact that thyroid extract exerts a very powerful influence upon the body, and he thinks that Beatson's method cannot be said to have been followed if the thyroid extract has not been administered. He concludes that cases treated by oophorectomy without thyroid extract do not justify a conclusion as to the uselessness of oophorectomy plus thyroid extract. His explanation of the benefit to be derived from the method is based on the protozoon theory of cancer—that the withdrawal of the ovarian secretion, coupled with the presence of an excess of the thyroid secretion, makes the tissues of some persons a less fit food for the cancer protozoon. He has treated some cases of uterine and vaginal cancer by Beatson's method, but deems it too early as yet to make a report of the results obtained. In addition, he has operated most successfully upon a case of left mammary carcinoma. Fourteen months later the patient was, comparatively speaking, a well woman.

During the winter three cases deemed suitable for an application of Beatson's treatment have come into my hands. Two weeks ago, through the kindness of my friend Dr. W. C. Hammond, I was permitted to examine a colored woman, forty-four years of age, who was suffering from an extensive cancerous involvement of the cervix and vaginal vault. She was considerably emaciated and suffered from severe pain and a profuse and offensive leucorrhea. She was informed of the serious nature of her affection, but refused operative treatment until she could hear from her brother, a physician of the South. She was, however, placed on the thyroid treatment, and at once experienced a marked relief of her symptoms—the pain and leucorrhea. She is now taking fifteen grains daily and is showing the good results of the medication. There is no alteration in the size or appearance of the growth.

The second patient, Mrs. W., of Collegeville, Pa., fifty years of age, was suffering from advanced pulmonary trouble, and in addition had an inoperable carcinoma of the left breast which had spread into the axilla. A freely discharging fistulous tract extended from the diseased axillary glands to the anterior axillary line. The patient had been in the hands of a faith-healer for some time and had refused both operative and medical interference. This was a most unpromising case upon which to attempt the method, but her consent was obtained to the administration of the thyroid extract, her general condition not warranting any operative performance. Under the influence of the extract she, in common with other patients so treated, noticed an alleviation of her pain within twenty-four hours, and by the end of forty-eight hours all pain had ceased. This had been her most pronounced symptom, and the relief was so gratifying that she expressed to the nurse her belief that she would have been cured if she had only begun treatment six months earlier. Owing to her weakened condition she was given but 7½ grains of the extract in the day. The relief from pain continued until the time of her death from the pulmonary disease, two weeks after the first dose had been administered.

The third patient, Mrs. H., aged forty-two years, presented a carcinomatous growth of the right breast with a cauliflower-like excrescence the size of a large orange protruding from the upper surface of the gland. The axillary glands were considerably enlarged. She had suffered greatly from the lancinating pains and from the profuse serosanguinolent "weeping," which saturated a number of dressings daily. She had also had one or two large hemorrhages from the under surface of the ulcerated mass. The patient refused to have the knife employed either upon the breast or for the purpose of castration, but readily consented to the administration of the thyroid extract. Beginning on October 11, 1898, with a five-grain tablet three times daily, the treatment has been continued up to the time of writing. After five days of the medication the daily dose was increased to twenty grains, and thenceforth maintained at this amount. Four days after the first dose the patient reported that there was less weeping and much less

* *Lancet*, June 11, 1898.

pain, and stated that the tumor did not feel as heavy as formerly. One week later the under surface of the ulcerated mass showed signs of cicatrization, and the other improvements noted had persisted. Her appetite also was steadily growing larger, and her general condition was good. A profuse hemorrhage occurred three days subsequently, but was promptly arrested by a five-per-cent solution of acetanilid. On November 2 the general appearance of the tumor was healthier, and scar tissue could be plainly seen. Since then the general condition has remained excellent, and although the tumor has not further diminished in size there has been no appreciable spread of the disease. The local symptoms have remained *in statu quo*. On the whole the patient is much more comfortable than before the beginning of the treatment, and her general health has been greatly improved.

The following deductions would appear to be warrantable from a study of the foregoing clinical reports:

1. The ovaries exert a curious and as yet incomprehensible influence over the tissues of the body, and especially over the mammary glands.

2. This ovarian influence is in part neutralized by the action of the thyroid gland or of thyroid substance introduced into the body.

3. The administration of thyroid extract alone to patients suffering from cancer of the mammary gland or of the cervix uteri which has passed beyond the possibility of extirpation by the knife exerts a slight inhibitory action upon the growth, and results in a decided relief of the two prominent symptoms —pain and discharge. This action, however, appears to be but temporary.

4. The removal of the ovaries in cases of inoperable carcinomata, provided these organs be actively functionating, will result in many cases in an arrest of the progress of the malignant disease, or even in a total destruction of the neoplasm and an apparent cure of the condition.

5. This inhibitory action of oophorectomy in inoperable carcinomata is more decided if at the same time as much of the cancerous growth be excised as is possible, and the operations be supplemented by the administration of thyroid extract in full doses.

6. In older women, in whom there has already occurred an atrophy of the ovarian stroma, excision of these organs does not result as promptly nor as favorably as in women who are passing through the period of sexual activity.

7. The relief afforded by the employment of Beatson's method appears in from twenty-four to forty-eight hours, and in favorable cases is rapidly progressive.

8. The dose of the thyroid extract that may be safely employed varies from ten to fifteen grains daily.

9. It would seem that even though this method should not result in an absolute cure of the malignant disease, it would afford a longer lease on life and more effectual relief from suffering than would any other palliative operative procedure as yet devised.

ELECTROHEMOSTASIS IN SURGERY.

SKENE (*New York Medical Journal*, Feb. 18, 1899), after calling attention to the obvious disadvantages of ligature in the control of hemorrhage, states that his attention was directed to the possible adaptation of electricity to surgical instruments by observing the use of this agency in heating laundry smoothing-irons. An electrical forceps was so designed that a portion of the bleeding tissues could be firmly grasped in its jaws in order to expel as much of the moisture as possible; then this grasped portion was desiccated by heat generated by the electric current. Thus are the walls of the arteries united, and hemorrhage is effectually prevented; the temperature required is not high enough to char or burn the tissues, but simply to cook them. The current required to heat the smallest instrument is two amperes, and eight for the larger, at a pressure of three and a half volts. After the bleeding tissues are seized, and before turning on the electric current, a shield is applied between the forceps and the adjacent tissues, to protect them from injury by contact with the hot instrument. The time required for desiccation varies from half a minute to two minutes, according to the condition of the compressed tissues or size of the arteries; two minutes being required for the ordinary ovarian pedicle and the broad ligament.

The author has employed this method in over 200 celiotomies and in many vaginal hysterectomies and other operations, and has never had a secondary hemorrhage in any of them. The tissues which have become friable by disease and will not hold a ligature are firmly secured by this method; also when the stump is primarily infected it is thus thoroughly disinfected.

The Therapeutic Gazette

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Leading Articles.

THE VALUE OF REST IN THE TREATMENT OF CARDIAC DISEASE.

If there is one fault in therapeutics to-day above all others, it is the habit on the part of some physicians of employing drugs when other remedial measures will produce equally good results; and it is so much easier to write a prescription than to take the trouble to go into a minute detailed description of a line of treatment which is to be carried out that in many instances the patient receives a medicine and does not receive salutary advice. Perhaps no better instance of the needless use of drugs, when other remedial measures will do equally well, can be deduced than the constant habit of some physicians of prescribing digitalis or other cardiac stimulant to patients who are suffering from various forms of cardiac disease, and too often a few minims of some powerful drug is given three times a day when hygienic measures would benefit the patient very much more.

One of these hygienic measures more frequently employed in England than in this country is rest, in the treatment of valvular disease of the heart. While it is of course true that it is impossible to give to the heart muscle absolute rest, it is nevertheless possible to protect it from a large amount of unnecessary wear and tear, and we have come to regard absolute rest in bed with massage and gentle Swedish movements as being of far greater benefit to most patients who are suffering from valvular disease with associated failure of the circulation than is digitalis or any similar drug.

Those who have ignored this important factor, rest, in the treatment of cardiac disease, will we are sure be greatly surprised at the relief of the symptoms, both acute and chronic, which have brought the patient into professional care, even though no drug be given. In some instances it is wise to begin the treatment, after the patient has had twenty-four hours' rest in bed, by the administration of some fairly active cathartic which will unload the liver, which is very apt to be engorged with blood in cases of failure of circulation, and also to administer tonic drugs such as minute doses of quinine and arsenic for their beneficial influence upon the blood itself and upon nutrition in general. The patient ought to be sponged freely with alcohol and water, with active friction, preferably at night just before going to sleep, as this sponging will keep the skin clean, improve the peripheral circulation, and by allaying peripheral nervous disturbances cause the patient to sleep more comfortably.

Where the action of the heart remains excited and transmits a heaving impulse to the chest wall, advantage may be gained by applying to the patient's precordium an ice-bag partly filled with small pieces of ice, which, because of its being partly filled, fits snugly to the chest wall and does not readily fall off when the patient changes his position slightly.

Sometimes it is necessary, instead of administering small doses of digitalis, to give these patients small doses of aconite to put aside excessive cardiac action.

THE ABUSE OF QUININE.

Apropos of the editorial bearing this title, which appeared in the March issue of the THERAPEUTIC GAZETTE for the current year, and of the Progress item taken from the *Medical Record* and published in our pages, it is interesting to note that the discussion in

regard to the value of quinine in malarial hematuria has been waged with even greater activity than before.

The great difficulty that many men seem to labor under in discussing a medical subject is an inability to realize that a drug capable of doing an infinite amount of good under certain circumstances is also capable of doing a similar amount of harm under others. This is our whole contention in this matter. It is not to antagonize the use of quinine in malarial infection unless there be side by side with that condition some state which renders the administration of this remedy inadvisable. It would seem evident that in some cases in which blood is in the urine, quinine certainly does no harm and perhaps may do good, but the evidence is convincing that in other cases it does a vast amount of damage. The proper attitude for the practicing physician to take is not that of one willing to entirely cast aside this valuable drug, nor of one who is willing to use it as a panacea for every case, but rather that of one who determines the fitness of the drug to perform certain functions. In a number of instances protests against the position taken by the *Medical News* in regard to this question have appeared. One of them is published in the correspondence columns of the *News* of March 18 by Dr. Colomb, of Louisiana, and we are glad to see that in the editorial reply to this letter the *Medical News* is after all coming to the position which we occupy ourselves, namely, that the drug is not to be used freely in every case. Certainly the dictum of the *Medical News* that "quinine should be used freely whenever malaria is clearly present, no matter what the complication," is too far-reaching.

The *North Carolina Medical Journal* of March 5, 1899, also contains a series of interesting papers upon this subject. In the first of these, Dr. Lewis, of Jackson, North Carolina, stated that he gives quinine in malarial hematuria, but he wishes it understood that he advocates medium doses, just sufficient to prevent another paroxysm, and he makes the additional suggestion, which we think is wise, that the quinine should not be given by the mouth until the stomach is retentive and the urine clear. He concludes his article by the following summary:

"1. Protect against another chill with quinine hypodermically administered once every twenty-four hours, until the urine clears and the stomach is quiet. Give morphine with first dose of quinine, and keep patient gently under its influence until he improves.

"2. Give high rectal injections of normal salt solution from the first. Repeat them every four or six hours, until convalescence is assured. Inject normal salt solution under the skin for threatened suppression of urine, uremia, or collapse.

"3. Move the bowels frequently with calomel and phosphate of sodium. Avoid overpurgation; give nitrohydrochloric acid after bowels act.

"4. Control temperature with cold sponging. Rely on morphine hypodermically for nausea and persistent vomiting.

"5. Keep patient in recumbent position. Withhold all food for twenty-four hours—but give all the water, hot or cold, the patient will take.

"6. Nourish by the stomach after twenty-four hours, if possible; if not, by the rectum.

"7. Give quinine in small doses until complete convalescence. Put patient on blood tonics; see to the quality of his food, drinking-water, and clothing."

Another article on the same subject in the same issue of the *North Carolina Medical Journal*, by Dr. White, of Belvidere, North Carolina, states emphatically that hemorrhages are due to the improper and prolonged administration of quinine in a system unable to receive it. When he is called to a case he immediately gives a hypodermic injection of morphine and atropine to relieve the nausea, vomiting, restlessness, and pain, and applies counter-irritation over the stomach, liver, and kidneys; gives a twenty-grain dose of calomel, and follows it in twelve hours by an enema; and if the hematuria persists, in twenty-four hours more another twenty-grain dose of calomel is given. He also administers three grains of nitrate of potassium well diluted every three hours until the urine becomes clear, and he uses salicine and Fowler's solution as a tonic and stimulant, supporting the heart with strychnine, digitalis, and hot bottles, and giving hot liquid nourishment. He concludes his article by saying that during the first two years of his practice he considered this disease a pernicious malarial fever, and treated it accordingly with large doses of quinine, and all his patients died. He then abandoned the quinine and had much better results.

The third paper in the same issue, by Dr. Mann, of Nashville, North Carolina, indicates that he does not employ quinine in this stage of the disease, for he tells us that he never employs it until the patient's urine is cleared up and the sick stomach has disappeared,

and then in very small doses. He also gives full doses of calomel, copious draughts of water containing bicarbonate of sodium, digitalis, and applies hot bottles over the kidneys. In other words, he endeavors to relieve the renal difficulty as much as possible.

ARE THE SALICYLATES USEFUL REMEDIES IN TRUE GOUT?

There is no class of diseases of which we know so little in respect to their etiology and pathology as those which are classed as diathetic, or in other words, dependent upon some disorder in the nutritional processes which we call metabolism. Because of this ignorance the use of all of our remedial measures for this class of cases is to a great extent empirical and unsatisfactory, and the exhaustive studies of the last few years made by Garrod, Haig, Luff, and others, while seeming to promise far more satisfactory knowledge of these diseases, have not advanced as far as the practical clinician and therapeutist desires. That the disease, gout, does depend upon faulty metabolism, and that as a result of this fault uric acid is formed in the body in excess, is proved, but the causes of the faulty metabolism are undiscovered, and therefore our methods are chiefly devoted, aside from diet, to its relief rather than the cure of the malady. It is not our intention at this time to attempt to discuss the very important question of the pathology or pathogeny of gout; on the one hand we find a nervous origin urged, and on the other that an accumulation of uric acid is the factor to be combated. Much of Haig's suggestive work, however, is based on hypotheses which do not seem to us to be founded upon fact, and certain of his experiments, accurate in themselves, are equally hypothetical in origin. If, as he claims, uric acid in excess is the cause of the attacks of gout, we should have theoretically a most sovereign remedy in salicylic acid, but as a matter of fact it very often fails, and a decision as to its anti-gout powers is to be sought therefore more in clinical observation than in experiment.

About this point opinions differ most essentially, some clinicians asserting that the salicylates are most efficient, and others teaching that they are futile. Thus Germain Sée and Jaccoud believe them superior to colchicum, whereas Sir Dyce Duckworth, Barclay, Ebstein, and Lécorché believe the salicylates less valuable.

It is evident at once in studying this matter that we must divide it into two parts, namely, as to the value of the salicylates in the acute attack, and as a remedy for the condition between the attacks and for the cause of the attack.

In respect to the attack Duckworth reports that he has tried sodium salicylate in a considerable number of cases of acute gout and finds it very inferior to colchicum, and inquiry among his friends elicited a similar conclusion. He has, however, seen it do great good in a few cases in which colchicum failed, but he cannot predicate which will be benefited. Ebstein thinks that under the salicylate treatment the manifestations of the attack simply shift from joint to joint. Lécorché asserts that while salicylate of sodium often relieves the pain of gout, it does not shorten the attack, nor does it prevent subsequent attacks, although he asserts that its use in full doses of one to one and a half drachms increases the elimination of uric acid in the urine, and Henri Soullier asserts that the salicylates are the best remedies if the kidneys are intact.

THE SURGICAL TREATMENT OF GOITRE.

As a result of what is now an enormous experience in the surgical treatment of goitre, not only has the technique of operation been simplified and the mortality greatly lowered, but the indications for operation have become considerably extended, and the choice of methods has been fairly well crystallized. Reverdin has collected records of 6103 operations. The mortality is less than three per cent, in marked contrast to Liebricht's statement that before 1851 the mortality was over thirty-one per cent.

The choice between general and local anesthesia should be founded on general principles. Reverdin very justly holds that in the case of a simple goitre, not complicated by symptoms of dyspnea, there is neither danger nor inconvenience in the administration of a general anesthetic, and under such circumstances ether is the agent to be chosen. In grave cases it may be necessary to operate either without an anesthetic or by means of local anesthesia. Socin has practically abandoned general anesthesia and practices the operation entirely under the influence of cocaine infiltration. The only painful part of the operation is, he states, that attendant upon the section of the sub-

hyoidean muscles. In his last 110 operations Socin used local anesthesia ninety-one times, chloroform nineteen times. He has completely given up ether. Roux, who has personally operated on 526 cases, has abandoned all anesthesia, holding that thus the operation is rendered bloodless, and that the sensations of the patient are valuable in aiding the surgeon to avoid structures which should not be injured.

Exposure of the tumors by transverse incision is the method of choice. The sternomastoid muscles are retracted; the sternothyroids are either separated or divided, after which there is seen an aponeurotic envelope which must be cut through before the proper capsule of the tumor is reached.

The total extirpation has now been completely abandoned. In the partial extirpation, the principal operative danger is dependent upon the fact that the recurrent laryngeal nerve may be injured when the inferior thyroid is ligated. The enucleation, which is with Reverdin the operation of choice, consists in cutting through the layer of glandular tissue enclosing the cystic or solid tumors, and enucleating them by means of the finger, or by blunt instruments. Reverdin finds that partial extirpation gives a mortality of 3½ per cent, whilst in intraglandular enucleation the mortality is less than one per cent.

The causes of death are mainly incident to respiratory complications, though tetany, myxedema, hemorrhage, and septic infection also figure in the mortality columns.

Enucleation has not been followed by death from hemorrhage, septicemia, or from tetany or myxedema. The primitive hemorrhage is usually insignificant. The recurrent is less likely to be wounded, and after enucleation the neck preserves a more normal appearance than after a partial extirpation.

All operations may be followed by recurrence. When the tumor cannot be treated by enucleation, partial extirpation is the method of choice. Reverdin believes that when the goitre is acutely inflamed it should be extirpated, if seen at an early stage of the infection; should be incised, if seen somewhat later.

Socin agrees with Reverdin as to the advantages of enucleation. Of 200 operations, he notes that in thirty-six abscesses developed due to staphylococcus. Roux particularly insists upon the importance of beginning the direct attack upon the goitre by first ligating the superior thyroid artery, then passing a loop about the isthmus so that in case tracheotomy should be necessary the trachea can be freed immediately and a tube inserted. In all difficult cases every preparation should be made for such a tracheotomy. When there is much bleeding following enucleation, he ligates the inferior thyroid. When the goitre is acutely inflamed, Roux strongly advises against any more formidable intervention than that by incision. Of 225 goitres recently operated upon, Roux has lost but three. Girard has lost six cases out of 545 operations, three from cardiac syncope. Doyen performs thyroidectomy in from five to six minutes; ten minutes is his maximum.

These communications to the Congrès Francais de Chirurgie represent fairly well not only the enormous number of goitre operations performed in Europe, but the admirable results obtained from these operations in the hands of many different operators, and the absence of the disagreeable sequels attendant upon the earlier complete removal of the gland. Not only does the cystic or solid goitre form an unsightly and cumbersome tumor, but it is almost invariably accompanied by nervous and circulatory disturbances, which are more or less crippling. Aside from its cosmetic value, the operation is usually attended by a rapid and most marked improvement in general health and activity. It is well to have these facts repeatedly brought to the attention of physicians, until, recognizing how safe and satisfactory the modern operation is, they make surgical intervention as popular here as it is abroad.

WOUNDS OF THE PERICARDIUM AND HEART.

Loison prefixes an admirable study upon this topic (*Revue de Chirurgie*, Nos. 1, 2, and 3, 1899) by a quotation from Legouest, to the effect that no topic seems more interesting than the history of wounds of the heart, but that there is in reality none which offers less of interest, since the whole subject is covered by a few curious and authentic facts, others more or less doubtful, an uncertain symptomatology, hopeless therapeutics, and an almost invariably fatal termination.

With the idea of disproving to a certain extent this summarization of the subject, Loison has collected the cases reported since Fischer's memoir published in 1868, and based upon 452 observations. Two hundred and twenty-seven cases were collected, giving

a total mortality of 84.8 per cent, which corresponds almost precisely with Fischer's mortality.

The cases are arranged in four tables, the first of which includes wounds by needles, the second wounds by puncturing and cutting instruments, the third gunshot wounds, and the fourth rupture on contusion.

Of twenty-three cases of needle wound, thirty-nine per cent recovered; in a number of cases the needle was withdrawn; in one instance it was not seen until after the pericardium was opened, when the extremity was observed in the right ventricle. The muscles were superficially incised, but the needle buried itself still more deeply at each systole and could not be withdrawn. In another case, after resection of the fifth rib and opening of the pericardium, the needle was distinctly seen penetrating transversely the right ventricle, but could not be extracted. The case recovered.

In ninety cases of stab wounds there were but eleven recoveries. One of these was without intervention; three got well after incision and tamponing the pericardium; two after incision and drainage of the pericardium, which had been attacked by secondary suppuration; three after suture of the pericardium; one after suture of the heart and drainage of the pericardium; and one after suture of the heart and of the pericardium. Twenty-three of the ninety cases were subject to surgical intervention.

Parozzani's case was one of the most brilliant. The patient had been stabbed in the seventh intercostal space in the left mammary line. An L-shaped flap was raised, and the fifth, sixth, seventh, and eighth ribs were resected. A wound of the lower part of the pericardium was observed from which was issuing blood. The pericardium was opened by a 2½-inch incision, and a wound was then observed at the extremity of the left ventricle from which spurted a jet of blood at each systole. By means of four silk sutures the wound in the heart was closed. After this the opening in the pericardium was secured by six sutures, whereupon the flap, made up of the ribs and soft parts, was secured in place, and about three pints of artificial serum was injected subcutaneously. This patient recovered completely.

These results prove that in a limited number of cases surgical intervention in wounds of the heart might be as distinctly indicated, and, if timely, as completely successful, as it is in wounds of the abdominal viscera.

Reports on Therapeutic Progress

TREATMENT OF PHARYNGITIS.

The *Journal des Praticiens* of December 10, 1898, quotes Castex as dividing pharyngitis into two groups, namely, the acute and chronic. The acute form can again be divided into the simple and catarrhal variety and the septic and phlegmonous.

In the treatment of the simple form hot antiseptic atomizations with borated, phenolated, or mentholated solutions are useful, particularly if at the same time a hot vapor bath is taken and some quinine is administered. The following prescription is also suggested to be taken internally:

Antipyrin, 45 grains;
Syrup, 1 ounce;
Distilled water, 4 ounces.

This may be divided into several doses and taken in the course of twenty-four to forty-eight hours. In other instances the following prescription is useful:

Tincture of aconite, 20 drops;
Syrup of codeine, 6 drachms;
Syrup of tolu, 6 drachms;
Aromatic elixir, 4 ounces.

Two teaspoonfuls to a tablespoonful of this is to be taken every hour until the pulse shows markedly the influence of the aconite.

In the septic form of pharyngitis, copious applications of antiseptic solutions, containing carbolic acid or salicylic acid in the proportion of one per cent, are to be employed, and alcoholic stimulants, with intestinal antisepsis, is to be resorted to. If the case is exceedingly septic, it may be wise to use antistreptococcic serum to prevent suppuration.

Chronic pharyngitis is to be treated by general and local measures. The following tablet may be allowed to dissolve in the mouth:

Chlorate of potassium, 3 grains;
Extract of eucalyptus, 1 grain;
Powdered cubebs, 3 grains.

These are mixed with any fruit paste in sufficient quantity to make a pastille, and two to three are to be used before speaking or singing.

In the congestive form gargles of antiseptics or atomizations of hot liquids are useful, and should there be a tendency to lack of secretion and induration of the part, the following may be applied by means of an applicator:

Iodine, 15 grains;
Iodide of potassium, 45 grains;
Distilled water, 1 1-2 ounces.

If granulations are present they should be treated by the electric cautery. Hypertrophies must, if necessary, be removed by curetting, and internally the bromides may be needed; but as a rule hydrotherapeutic measures, designed to increase vascular tone, are advisable. Often a visit to some hot spring with alkaline waters is useful.

THE TREATMENT OF LARYNGEAL TUBERCULOSIS.

The *Journal des Praticiens* of December 3, 1898, contains an article on this subject, which, after pointing out the unfortunate condition of the patient suffering from this malady, proceeds to the consideration of the various measures which can be instituted for its relief. These methods may be divided into four groups, namely, the treatment by atomization, insufflation, inhalation, and direct application.

Hot vapors, or atomizations, are particularly useful in the congestive period of the disease. They are best used by placing the medicament in boiling water, through which air is drawn by the patient by inhalation, as is carried out, for example, in the various inhalers which can be found in most drug stores. Of the antiseptic fumigations, the following may be mentioned:

Carbolic acid, 15 grains;
Distilled water, 3 ounces.

Benzoate of sodium, 30 grains;
Distilled water, 3 ounces.

Boric acid, 45 grains;
Distilled water, 3 ounces.

Menthol crystals, 15 grains;
Tincture of eucalyptus, 2 drachms;
Alcohol, 2 ounces;
Distilled water, 5 ounces.

Benzoate of sodium, 2 drachms;
Boric acid, 1 drachm;
Glycerin, 2 ounces;
Distilled water, enough to make a pint.

Crystalline carbolic acid, 15 grains;
Glycerin, 2 drachms;
Decoction of marshmallow and poppy, 10 ounces.

Oil of eucalyptus, 45 minims;
Alcohol, 2 1-2 ounces;
Distilled water, 6 ounces.

Sometimes these liquids can be used in an atomizer rather than by inhaling them in steam or moist air, but in some patients atomization causes too much irritation and seems to augment the inflammation of the larynx. In these cases sedative nebulations are necessary, such as:

Hydrochlorate of cocaine, 7 grains;
Hydrochlorate of morphine, 7 grains;
Cherry-laurel water, 2 drachms;
Neutral glycerin, 1 ounce;
Distilled water, 10 ounces.

Hydrochlorate of cocaine, 7 grains;
Carbolic acid, 7 grains;
Cherry-laurel water, 2 ounces;
Neutral glycerin, 2 ounces;
Distilled water, enough to make a pint.

Hydrochlorate of cocaine, 4 grains;
Chloral, 45 grains;
Bromide of potassium, 30 to 60 grains;
Glycerin, 2 ounces;
Distilled water, 10 ounces.

In some cases the cocaine may be well replaced by carbolic acid or creosote.

Hydrochlorate of cocaine, 30 grains;
Hydrochlorate of morphine and antipyrin, of each 15 grains;
Neutral glycerin, 2 ounces.

Of this a teaspoonful is to be put in half a glass of distilled water and atomized. Or,

Hydrochlorate of morphine, 3 grains;
Bromide of potassium, 2½ drachms;
Water, 3 ounces.

Arsenate of sodium, 2 grains;
Hydrochlorate of morphine, 2 grains;
Glycerin, 2 ounces;
Water, 3 ounces.

Bromide of potassium, 3 drachms;
Hydrochlorate of morphine, 2 grains;
Cherry-laurel water, 2 ounces;
Distilled water, 1 pint.

Of the preparations which may be used for insufflation, we find that the following drugs are most commonly applied: Iodoform, aristol, iodol, salol, dermatol, alum, tannic acid, and acetate of lead, all these being incorporated with sugar of milk. Of the pain-relieving insufflations, mention may be made of:

Hydrochlorate of morphine, 1-2 grain;
Sugar of milk, 30 grains.
Gum arabic, 15 grains.

Extract of belladonna, 1-2 grain;
Powdered alum, 2 grains;
Powdered white sugar, 2 grains.

Iodoform, 45 grains;
Oxide of zinc, 30 grains;
Morphine, 2 grains.

Of the inhalations of balsamic substances which combat the fetid odor, much can be said. We may mention turpentine, menthol, balsam of Peru, and essence of pine, all of which may be used by soaking a tampon with them and placing it in an ordinary pipe through which the air is drawn; or in other cases these medicaments may be added to hot water, and the steam laden with them inhaled.

A large number of substances can be used for direct application, but nearly always this requires the skill of a competent laryngologist.

Finally, mention is made that in the papers of Rosenberg intralaryngeal injections with a special syringe are recommended; the injection consists of:

Menthol, 6 drachms;
Sterilized olive oil, 3 ounces.

A small quantity of this is injected into the larynx.

ASTHMA AND ITS TREATMENT.

The *British Medical Journal* of December 24, 1898, contains an article on asthma written by SIDNEY MARTIN, in the course of which he says that in considering the treatment of asthma it will be convenient to limit the discussion to the primary spasmodic form uncomplicated by bronchitis, and to the form associated with bronchitis, whether this be bronchitic asthma — that is, bronchitis preceding the asthma — or a case of primary asthma complicated later by chronic bronchitis. In the latter case the treatment is that of bronchitis as well as asthma; in the former it is that of asthma alone.

It is to be remembered that the attacks of asthma may begin suddenly and cease suddenly; and their sudden cessation is due, as a rule, to no medical treatment, but to some sudden excitement, shock, or some change of life, or to a change of locality. This applies chiefly to those cases uncomplicated with bronchitis. The sudden stoppage of the attacks, even for months, does not preclude their recurrence; indeed, they usually recur. Each case of asthma has its peculiarities as regards the manner in which the attacks are influenced by locality, food, and mode of life.

In discussing the treatment it must be borne in mind that although it is probable that spasm of the bronchial tubes is the immediate cause of the respiratory symptoms, in some cases the attacks are associated with peripheral irritation (inhalation of pollen, disease of the nasopharynx, indigestion of food, etc.), and that in all cases of asthma, although to a varying degree, there is a functional disturbance of the central nervous system and of the respiratory center.

Sedatives. — It is necessary to treat the asthmatic attack; the patient demands it, and the condition requires it. In uncomplicated asthma sedatives will cut short the attack, such as the hypodermic injection of morphine ($\frac{1}{6}$ to $\frac{1}{4}$ grain), the administration of chloral, or the inhalation of chloroform. The effect of the latter is evanescent, and it is not to be compared in efficiency to either morphine or chloral. The use of morphine or of chloral is to be limited to the attacks, is not to be continued for too long a period, and must be in the hands of the practitioner and not of the patient.

Inhalation.—The inhalation of the fumes of burning niter paper or specially prepared powders, or of cigarettes, is the popular remedy for the attacks of asthma. In many cases they give relief, in some marked relief. The powders consist of stramonium and niter chiefly; the one which Dr. Martin uses at the hospital contains one part each of anise and niter, two parts of stramonium leaves, and five grains of tobacco, to the ounce; one teaspoonful is to be burnt on a plate and the fumes inhaled. The cigarettes used are a manufactured article containing stramonium leaves, niter, and tobacco; they relieve the attacks sometimes when the powder fails. A pill containing $\frac{1}{6}$ to $\frac{1}{4}$ grain of morphine, with $\frac{1}{60}$ grain of atropine sulphate, given at bedtime, is sometimes useful. Extract of stramonium ($\frac{1}{4}$ grain) may be substituted for the atropine. Martin has not found the ethereal tincture of lobelia very useful; but he says he has not tried it in the way recommended by Hyde Salter, namely, in repeated small doses before the attack is expected.

Treatment of the General Condition.—The relief of the attacks of asthma is a necessity, inasmuch as repeated attacks not only seriously curtail the business and pleasure of life, but conduce in the pure spasmodic form to the supervention of bronchitis and emphysema. The use, however, of sedatives, such as morphine and chloral, and of inhalations, constitutes no treatment of the disease, and must be limited as much as possible, especially in the uncomplicated form of asthma, while efforts are made to benefit the general condition of the patient. Harm is frequently done by the indiscriminate use of inhalations, predisposing as they do by their irritant nature to the supervention of bronchial catarrh. Of remedies which may be continuously administered to patients who have frequently recurring attacks, two are most constantly used, namely, iodide of potassium and arsenic. The iodide may be most conveniently given with stramonium, as in the mixture in the Hospital Pharmacopœia, which consists of a quarter of a grain of extract of

stramonium, two grains of extract of licorice, three grains of iodide of potassium, and five minims of chloric ether. This mixture may be given two or three times daily in cases of asthma, and in many instances with benefit. In some cases, indeed, although not usually, it promptly stops the attacks. It possesses two drawbacks. The stramonium leads in some cases to paralysis of accommodation, which is detrimental to the carrying on of the person's occupation. But by diminishing the dose the patient soon ceases to experience discomfort from the remedy, and Dr. Martin says he has not yet seen an asthmatic who did not prefer stramonium, with its drawbacks, to the disease. Some asthmatics, especially those of a highly neurotic temperament, are very susceptible to the action of stramonium; Dr. Martin has seen doses of even $\frac{1}{16}$ grain of the extract produce dryness of the throat and a state of nervous excitability which necessitated the stoppage of the drug. He thinks if patients can take stramonium with the iodide they do better than with the iodide alone. If given alone, the iodide must be administered in five-grain doses two or three times daily, the medicine being stopped from time to time. Arsenic by itself in doses of three minims of the liquor arsenicalis is a useful remedy for continuous administration in asthma, and it may be combined with iodide of potassium (three to five grains) in a mixture.

Peripheral Irritation.—The treatment of local conditions which act as peripheral irritants in cases of asthma need not be discussed at length. With regard to the nasopharynx, the presence of a nasal discharge (watery and mucoid) in cases of asthma other than hay-asthma is by no means uncommon, but is not always associated with serious local disease. The insufflation of a solution of bicarbonate and chloride of sodium, if there is much nasal secretion, is frequently of service, and the application of cocaine in such cases to the nasal mucous membrane is described by the patients as helping to relieve the attacks. Application of the cautery in some cases relieves hay-asthma. In children with large tonsils or with adenoids, in whom asthma supervenes, the surgical treatment of the local condition, although it may be necessary, does not of itself cure the asthmatic attacks, which may persist for months after the fauces and pharynx have been successfully treated. The removal of a nasal polypus may greatly relieve the attacks, but not a few cases persist after removal.

Diet.—Chronic asthmatics—that is, those in whom the attacks have lasted for some months or years—are frequently the subject of indigestion of food, as shown in the symptoms of weight and discomfort after food, and flatulence. This is sometimes the result of overdrugging. In the cases of peptic asthma the regular attacks of the disease occur after a meal, usually the heaviest meal in the day, and are associated with indigestion of food. The regulation of the diet of asthmatic patients is of great importance; meals ought to consist only of digestible food, and that in moderate quantity, no heavy late meals being allowed. Remedies such as alkalies after meals, given with the view of correcting the indigestion, combined with a proper diet, give great relief to cases of peptic asthma. Although the asthmatic ought to be careful as regards the food taken, it is wrong treatment to starve such a patient; only harm can come of it, inasmuch as the best chance of the patient recovering is an improvement of his general health, and this cannot occur without a sufficiency of food. It is for this reason, doubtless, that cod-liver oil does so much good in some cases when every remedy seems to have failed. The improvement if the oil can be taken is sometimes very marked, rendering possible the diminution, or even cessation, of the inhalations which the patient considered his sheet-anchor.

The confirmed asthmatical adult can only be relieved, and that sometimes very imperfectly, by the methods which have been detailed; and indeed in some cases all treatment appears of as little avail as in confirmed epilepsy. It is quite otherwise with the asthma of children under the age of ten years, at which time a large number of cases arise. By treating the attacks by a careful regulation of the diet and mode of life of the child, and by the avoidance of any "hot-house" treatment over a number of years, the asthmatic child loses his attacks without serious damage to the respiratory apparatus.

THE "TRANSACTIONS" OF THE SOCIETY OF ANESTHETISTS OF ENGLAND.

From a perusal of the published "Transactions" of the Society of Anesthetists of Great Britain, one will, of course, gather much instructive and practical information; but at the same time one can hardly forbear to notice the difference of opinion that exists between skilled anesthetists, both as regards

the anesthetics to be used and the manner of administering the same. Owing to the large number of fatal results following the giving of chloroform, that drug has undoubtedly, even in Great Britain, fallen into a certain degree of disrepute as an anesthetic, and ether has correspondingly risen in the estimation of medical men as a safer means of producing unconsciousness. Nevertheless the upholders of chloroform still contend—and probably rightly enough—that the danger is not so much in the chloroform itself as in the manner of its administration. Mr. Tyrrel, when reading a paper before the Society, and commenting on the many writers to medical journals nowadays who conclude their communications by saying that they have never had any difficulties with ether, appositely remarks: "When I read these letters I feel like Mr. Underwood, who was instructing a student at the Dental Hospital of London how not to break a tooth in extracting it, when the student said that he never had broken a tooth, and Mr. Underwood said: 'I am sorry for you; your experience hitherto must have been extremely small.' And this is what I feel when a man rushes into print to say that he has never had any difficulty with ether." Mr. Tyrrel is also not in favor of the A. C. E. mixture, but uses an adaptation of his own of the "double-bottle method," by which chloroform can be administered and ether added as required for the particular case under treatment. This method is said to act very well in the hands of a skillful administrator, although it is yet to be proved that ether increases the action of the chloroform. We should be rather of the opinion that its action is that of a stimulant to the patient.

The paper read by Mr. Alexander Wilson, on resuscitation in emergencies under anesthetics, is a clear exposition of the subject, but is much too lengthy to be more than briefly noticed. To one point we would, however, draw attention—to the habit of injecting strychnine to counteract the ill effects of chloroform. For some time past Dr. Silk has been accustomed to give strychnine in all cases in which he contemplated a severe operation, injecting a small quantity (one-twentieth grain) immediately after the induction of anesthesia, and repeating the dose once or twice if necessary. Recently in the *British Medical Journal* it was reported that as much as half a grain of strychnine had been given in a case of chloroform poisoning; and in the same journal a writer stated that when he used strychnine as an antidote to chloroform overnarcosis, he gave at least fifteen minims of liquor strychninæ. This would seem to show the importance of giving fairly large doses, in order to get any counteracting effects. Dr. Dudley Buxton, the president of the Society of Anesthetists (speaking on the question of the methods to be used in administering anesthetics, and in answer to questions by Dr. Cook inquiring whether the pouring of chloroform on lint, or A. C. E. mixture in Rendle's inhaler, which allowed the ordinary air to be mixed with it, was not an unjustifiable method in the light of recent exact experiments and the results obtained from them), said that he (the President) could not sit in judgment upon methods which others had seen fit to employ, nor could he go so far as to say whether or not any methods were unjustifiable. His own personal feeling was that any method which did not admit of exact or nearly exact dosage was faulty, and that faultiness would sooner or later appeal to those who used it in a most unpleasant way. One had also to remember that no less an authority than Lord Lister had stated that an exact dosage could not be guaranteed by the employment of lint or a towel on which chloroform was dropped, believing as he (Lord Lister) did that, knowing the temperature of the air and therefore the rate of evaporation, no one could tell at what rate the anesthetic was inhaled. Personally he thought the experiments from which the dictum was made were open to grave criticism.

It will be seen from the foregoing that the feeling in Great Britain leans toward the use of ether; that it is now generally recognized as a safer anesthetic than chloroform; and also that medical men are gradually but surely becoming conscious that methods whereby exact dosage can be guaranteed are far safer than the old haphazard modes of administering anesthetics.—*Medical Record*, Dec. 31, 1898.

PROTARGOL AND ARGONIN IN THE TREATMENT OF THE PURULENT OPHTHALMIA OF INFANTS.

The *Medical News* of January 21, 1899, contains an article by Peck in which he describes his views as to the value of these new drugs in this serious malady in infants.

Dr. Peck says his only motive for presenting this brief paper is to emphasize the following points in connection with the two remedies, protargol and argonin, in so far as

they seem to be superior to silver nitrate. These points are: (1) the quicker destruction of the gonococcus; (2) the earlier disappearance of the secretion and the inflammatory process; (3) the resolution of the injured corneal and conjunctival tissues.

A brief chemical review of these two agents is necessary in order to understand their clinical relations. Each is described as "a silver proteid compound, solutions of which cannot be precipitated by sodium chloride, or by albuminous fluid." Protargol contains 8.3 per cent of silver; it is a yellowish powder, readily soluble in cold as well as in hot water, forming a clear solution. Argonin contains 4.2 per cent of silver; it is also a powder, being fine, white, and readily soluble in water on gently warming, but its solution is turbid. Argonin decomposes if exposed to too much heat in the preparation of solutions, and when decomposed it is very irritating. It is said not to keep well in solution, even in dark-colored bottles. In this connection it should be noted that silver nitrate contains 6.35 per cent of silver, occupying between protargol and argonin a middle position as to the basic salt.

The following process is given by F. Miehle for making solutions of argonin readily and rapidly: Ten parts of cold water is first introduced into a flask, and then one part of argonin. The whole is then vigorously shaken until a uniform mixture is had, when sufficient boiling water to make up the desired quantity of solution is added, the whole being frequently shaken until complete solution occurs, when the mixture is strained through a piece of gauze. The most effective solution of argonin for clinical work is one of three per cent. To prepare solutions of protargol the powder is stirred with some water, with or without the addition of a little glycerin, into a paste, and then diluted by adding the necessary quantity of cold or lukewarm water. Solutions of 0.25 to two per cent are generally employed. A saturated solution of protargol is fifty per cent.

The method of using these solutions in a case of gonorrheal ophthalmia of an infant should be described at this point, as also the whole régime of the management of the patient. Dr. Peck says that such régime requires the skilled work of a trained nurse or nurses, in conjunction with the good judgment of a physician. The best type of régime is found in a well-regulated hospital; but the same details can be carried out in a private family, under similar skilled labor and good judgment. If one eye only be affected the fellow eye should be covered securely in every part, save at the lower outer region, over the temporomalar portion of the orbit. This little opening is left for ventilation. The least harsh covering for a newly-born infant's eye is lintin; this is cut round, slightly larger than the orbit. It is covered with a soft fluff of sterilized cotton, and this latter with gauze. Collodion is smeared around the whole edge of the pad, save at the point already noted. This protected eye may be inspected every second day. The affected eye must be handled by the nurse from behind the patient's head. The nurse should never carry the infant in her arms. Small round layers of lintin are transferred from a large square of ice every minute or two to the affected eye; and these minute changes are made for one hour without intermission, when an interval of one hour, or two or three, is given, according to the mild character of the affection. The rule is, however, to begin with continued applications of the ice-cold pledgets by day and night, the patient being under the care of two nurses. No interval of application should be ordered until there is positive evidence of an abatement of secretion; this may not occur under two or three weeks, and it may result in a few days. The eyeball, lid, interspaces, and conjunctival sacs should at first be thoroughly irrigated with warm saturated solution of boric acid, the saturation point of boric acid being about four per cent. As the secretion diminishes and gets shreddy, the nurse should wipe out the discharge with cotton dipped in the same boric acid solution. Every effort should be made to keep the eye free from secretion. The protargol solution, at first five to ten per cent in strength, should be carried rather forcibly over the eyeball, and into the folds of the conjunctival sacs, by means of a large pipette; it should at first be used from four to six times a day. As soon as the secretion lessens in amount, or becomes shreddy, while its fluid part becomes thinner, the protargol solution may be brought down to two per cent, and may be used less frequently. A successful result of such treatment would be a limitation of the disease to three, possibly two, weeks.

Examinations for gonococci should be made every second day, and an eye should not be regarded as safe, or as amenable to contact with the mother, until a full week has elapsed, in which absolutely no gonococci are found under the microscope. It must not be for-

gotten that even with an apparently uninflamed eye, the sclera being white, the cornea glistening, and the lids scarcely swollen, gonococci may be present. The physician should not be too conservative as to the length of quarantine in a convalescing ophthalmia.

It is of great clinical advantage to know that protargol can be combined with many other salts, such as the sodium chlorides, alkalies, etc.; it is unaffected by cocaine, atropine, eserine, and other allied anodynes used locally in the eye, hence its field of usefulness in ophthalmia is very broad. It is not decomposed or precipitated by the albumen or alkalies present in the secretions from mucous membranes; and it may be stated that it is the only silver compound at present known which is not precipitated by dilute hydrochloric acid. Peck adds that its use in his hands in suppurations of the lacrimal sac, purulent styes, etc., has been more frequently followed by a checking of the pus-formation than when any other agent has been employed.

Peck then quotes two cases to show the advantage to be derived from the use of protargol in the treatment of gonorrheal ophthalmia. The results obtained show that the duration of the disease has been shortened, that gonococci have disappeared at an earlier date than usual, and that the sight of the affected eye has, to say the least, not suffered more than when other methods of treatment have been employed. In the earliest cases the protargol powder was dusted into the eye three times each day and allowed to remain fifteen minutes. This was soon changed to twice each day, but as the inflammatory reaction was marked and the patients complained of severe pain, a fifty-per-cent solution was substituted, being applied twice or thrice each day and allowed to remain in the eye three minutes. Later, a five-per-cent solution was used and allowed to remain in the eye fifteen minutes. This last solution has proved the most satisfactory.

THE USE OF DIURETIN IN DISEASES OF THE HEART AND KIDNEYS.

SCONAMIGLIO has reported the use of this drug in thirty-one cases. In nineteen of these there was a mitro-lesion complicated by arteriosclerosis. The results of its use in these cases were admirable, but on the other hand it was not of much value in conditions of the aorta, in atrophic cirrhosis, and pleurisy. This investigator noticed that the influence of the drug persisted for a long time after its administration was stopped.—*Revue de Thérapeutique Médico Chirurgical*, December, 1898.

ICHTHYOL FOR PRURITUS VULVÆ IN PREGNANT WOMEN.

The *Journal des Praticiens* of November 26, 1898, tells us that Doizy has employed this method of treatment with great success, and that it succeeds where almost all other remedies have failed. The ointment which he uses is fifteen per cent of ichthyol in lard.

THE USE OF MYDRIATICS FOR DETERMINING THE REFRACTION OF THE EYE.

The *Polyclinic* of December 24, 1898, contains an editorial on this topic by EDWARD JACKSON, in the course of which he says that a mydriatic is used for measuring refraction, not as a mydriatic, but as a cycloplegic. The important thing to be accomplished by it is to paralyze the accommodation. Only in exceptional cases will the dilatation of the pupil render skiascopy easier; or, by enlarging the circles of diffusion, add to the accuracy of measurements made with the ophthalmoscope or the test lenses.

The frequency with which the cycloplegic action of these drugs should be resorted to will probably always be a disputed point, since it is largely to be decided by the importance attached to certainty and accuracy in our measurements of refraction; and this is to some extent a matter of temperament. There always has been, and probably always will be, two classes of men, who approach their professional work from quite opposite sides. With one the question is, how can this work be done most thoroughly? With the other class it is, how can the work be done most easily, or most quickly, or to give the most striking impression of superior skill? In general medicine he who belongs in the one class hears the patient's full history, makes repeated observations, examines the urine, blood, or sputum, carries in mind the problems that the case presents, and cautiously searches for the best possible line of treatment. He of the other class asks a question or two, gives a sharp look, catches at the more obvious symptoms, and then with a knowing air writes a routine prescription, delivers a positive opinion, and drops the case out of mind. It is not strange that these two types of practitioners disagree entirely as to

the practical value of certain methods of arriving at a diagnosis.

In ophthalmology these two classes naturally disagree as to the need for mydriatics or cycloplegics in measuring refraction. Not that all the careful habitually use mydriatics, or that all careless or hasty practitioners do not—men do not separate quite that way on any question. But it being admitted that the use of a mydriatic reveals certain things that cannot be known otherwise, the one class says that these things are of some importance, may be essential to a full understanding of the case, and that it is the duty of a professional adviser not to suppose or approximate, but to know with all possible certainty and exactness. The other class says that the "experienced" ophthalmic surgeon can "judge" of the glasses required "well enough" without putting the patient to the inconvenience of being "blinded" for two or three weeks with "atropine;" and that if ophthalmologists will persist in using "atropine" their patients will leave them and go to opticians who will sell them glasses without being so exacting as to their suitability.

It is interesting to observe how those who reason in this way always speak of "atropine," and the two weeks required to recover from its cycloplegic effect, as though there were no other mydriatic. Apparently they do not know that the careful observations of Norris and Risley had settled eighteen years ago that duboisine, a more powerful and equally reliable mydriatic, entailed but one week of abstinence from near work. They write as if neither they nor their readers had ever heard of homatropine, studied by Norris, Risley, Schell, and others sixteen years ago, and in constant use ever since, which reduces the period of weakened accommodation to forty-eight hours, and which is the proper mydriatic to be used for purely diagnostic purposes in the mass of cases. To argue today against mydriatics on the assumption that atropine is the only drug of the kind worth considering, is to demonstrate ignorance of the facts of the case or a disposition to misrepresent them.

The real case against the mydriatic lies in the fact that it is generally only a means by which those who so desire (and are capable of exact observation) can make their measurements of refraction more accurate. He who does not care to be accurate, or who cannot make exact observations or estimate their value, really has no need to resort to a cycloplegic. The drug, the test lenses, and the patient cannot supply the lack of trained powers of observation or sound judgment on the part of the surgeon. If something is sought that will do this, the mydriatics do not meet the need. It is just this supposed power of mydriatics to make good the deficiencies of the surgeon that is found to be possessed equally by the latest refractometer, or the ophthalmometer.

Admitting that mydriatics may be unnecessary or unsatisfactory as a substitute for patience and skill, let us consider what they will really do. They render manifest latent hyperopia. This is something that cannot be done without a mydriatic. Latent hyperopia is not always present at any age, and its amount can never be inferred from symptoms. To know about it gives the surgeon a more complete command of the case. But though the revealing of latent hyperopia is sometimes spoken of as the only good thing the mydriatics can do, it is probably the least important of their services. Their use can prevent an overestimate of myopia and so render the exact correction of myopia both practicable and safe.

To measure anything exactly, it must be kept constant while the measurement is being made; and by securing fixity of refraction the mydriatics render possible the exact measurement of astigmatism, aberration, and anisometropia, in the measurement of which exactness is most important. It is slight inaccuracies in the measurements of these that most frequently prevent success in relieving the patient by glasses.

The measurements made with the help of mydriatics must be checked and sometimes corrected by other observations, and must be used with good judgment to be of the greatest service. But he who has them at his command has a broader, firmer basis for his opinion and advice than he who neglects such a help. And in arriving at a professional judgment, fulness and accuracy in one's acquaintance with the case are essential for the honest service of the patient, and the credit and success of his adviser.

It is certain that mydriatics are being used more and more generally in the practice of those who most carefully study errors of refraction, and their experience will in time be the guide of the profession. Guesswork and time-saving approximations belong to the sphere of the counter-prescribing optician, not to that of the careful and conscientious worker in this department of scientific medicine.

MEMBRANOUS ENTERITIS AND ITS TREATMENT.

EINHORN in an article on this subject in the *Medical Record* of January 28, 1899, thinks that diet plays the principal part in the treatment of membranous enteritis. While the older writers laid stress on scanty, light food, it is now generally accepted that abundant nutrition is of the greatest value. That a fluid diet is unsuitable the older authors have already been cognizant of (Da Costa, Whitehead, Siredey), and this axiom holds good in its entirety even to-day.

Recently von Noorden advised a very coarse diet, being guided by the idea that the intestinal tract should be exercised and strengthened by increased work. He recommends half a pound of bread per day containing plenty of chaff, leguminous vegetables, garden vegetables rich in cellulose, fruits with small pits and coarse skin, as currants, gooseberries, grapes—these being foods rich in undigestible material, thus forming much ballast for the bowel. Among fifteen patients subjected to this treatment by von Noorden, seven were permanently cured, seven improved, and one was unchanged.

This method has certainly much in its favor; it may be better, however, not to institute this diet abruptly, as suggested by von Noorden, but rather gradually.

Dr. Einhorn says he for his part for some years past has seen to it that his patients partook of an abundant and nutritious diet, without, however, advising substances that were too coarse. As a whole, he recommends ample food and tries to keep the patients on a mixed diet containing plenty of vegetables. In patients who have lived on a strict diet (as, for instance, milk diet or beef and hot water), he arranges the change gradually. The principle here is the same as stated by von Noorden, only not carried to such an extreme. It appears sufficient if the intestines of the patient with membranous enteritis are trained to master the foods customary in healthy persons, and the accomplishment of this object is all that is required. If we subsequently see that the organism amply fulfils its work a few less digestible foods may then be added. It is not necessary to recommend these immediately from the start, nor are they important for the cure.

With regard to therapeusis, two phases will have to be considered—the treatment during the attack and the treatment during the interval. In severe attacks, rest in bed, warm poultices over the abdomen, a cleansing enema (of ordinary warm water, with the addition of some common table salt or essence of peppermint, one teaspoonful to a quart), and afterward the administration of codeine or opium, with or without belladonna, are of value. As long as the pains last it is necessary to give light food (small quantities frequently). In mild attacks a stay in bed may not be requisite, nor the administration of an analgesic remedy, and the diet may be the same as during the interval.

In the interval free from pains the treatment consists in the methodical application of oil enemas, as suggested by Kussmaul and Fleiner. These enemas are injected into the bowel at night, at blood temperature, the quantity being two hundred and fifty to five hundred cubic centimeters. The patient is then instructed to try to retain the oil in the bowel during the night. The patients seldom assert that they are disturbed in their sleep by these injections and have to answer Nature's call. In such an instance the quantity of oil may be reduced to one hundred and fifty or one hundred cubic centimeters. The oil should be injected every night for three weeks; then every other night for three weeks; twice weekly for four weeks; finally, once weekly for five to six months. Besides, patients must accustom themselves to a regular morning evacuation, by promptly visiting the closet every day at the same hour in the morning. Next to abundant nourishment the methodical oil cure is of the greatest importance in the treatment of this affection, and the results achieved are, according to Dr. Einhorn's experience, very satisfactory. The administration of oil injections in membranous enteritis is mentioned here and there in recent literature, especially by Ewald, but its value must be placed much higher than heretofore. The oil has not only a favorable influence upon the constipation which is always present in this malady, but at the same time also effects a diminution or a disappearance of the mucous discharges. How the oil brings this about is difficult to say. The favorable effect may perhaps be explained by the circumstance that by means of the oil the intestine is not left in an empty condition during the night, and thereby a spasmodic contraction is avoided, which must be regarded as one of the principal factors in the formation of mucus.

It is evident, according to his statements, with regard to the etiology, that enteroptosis and anomalies of the gastric functions (principally achylia) exist in a large number of

these cases. It will, therefore, be necessary to bear these points in mind and to treat the cases accordingly. The neurotic symptoms present in these cases should not be neglected in the general plan of treatment. We shall have to pay attention to a regular hygienic mode of living and ample physical exercise. In suitable cases occasionally hydrotherapeutic measures will be of value. The tonic remedies, like iron, arsenic, etc., will also prove beneficial.

HOLOCAINE IN OPHTHALMIC SURGERY; ITS SUPERIORITY OVER COCAINE; ITS THERAPEUTIC VALUE.

HASKET DERBY, of Boston, expresses his views as to the value of holocaine in ophthalmic surgery in the *Archives of Ophthalmology*, No. 1, 1899. This new local anesthetic, to which he called attention more than a year ago (*Boston Medical and Surgical Journal*, June 3, 1897), has not yet come into very general use, judging from the little reference made to it in the medical press, as well as the indifference manifested by so many of those who have become habituated to the employment of cocaine. Believing, as Dr. Derby does, that the latter drug is in many important respects distinctly inferior to holocaine, and having used the new agent almost exclusively for the past sixteen months, he has thought that a brief record of his own personal experience might not be without value.

In the operation for the extraction of senile cataract it is a most efficient anesthetic. While not superior to cocaine in its superficial effect, it undoubtedly causes a greater degree of insensibility of the iris. Where a simple extraction is not performed and an iridectomy has to be done, we are all familiar with the start the patients may give, as well as the pain they complain of, at this stage of the operation. Under holocaine, applied after the corneal cut has been made and the anterior chamber evacuated, it is his experience that the iris very generally allows itself to be seized with the forceps and excised without much if any suffering. This is a very great practical advantage. In connection with the operation of extraction, however, it is but fair to remark on the fact that the holocaine does not control hemorrhage as cocaine does, and that where the latter agent is not used we are liable to meet with a troublesome amount of bleeding.

For the removal of a foreign body from the cornea, holocaine is decidedly preferable to cocaine, as it neither affects the accommodation nor enlarges the pupil, thus rendering its use possible in the case of people with a tendency to increase of ocular tension. In other operations on the cornea or iris, such as that of Saemisch for ulcus serpens or iridectomy for glaucoma, it is a well known fact that a degree of inflammation that prevents the absorption of cocaine will often yield to holocaine, thus rendering the use of ether or chloroform unnecessary. Had cocaine alone been at our command, general anesthesia would have been the only resort.

In the various operations on the muscles of the eye no local anesthetic has been found to give entire satisfaction. It can only be claimed for holocaine in this connection that it is at least as efficient as cocaine, and can be used in cases where distressing constitutional symptoms have been produced by the latter.

In probing the lacrimal passage, Dr. Derby still makes a preliminary injection of cocaine, the poisonous effects of holocaine, when administered internally, rendering it unsuitable for such a purpose. For the same reason no subcutaneous injection of the drug can be made. But in the numerous cases where he has used it locally and superficially he has never seen the slightest general disturbance.

To sum up, then, the advantages of holocaine over cocaine:

1. It does not cause mydriasis, and may therefore be used without danger of bringing about increase of tension.
2. It does not affect the accommodation.
3. It brings about a greater degree of anesthesia of the iris than does cocaine.
4. In cases of severe and painful inflammation which resist cocaine, holocaine often proves efficient.
5. Unless swallowed or injected subcutaneously it produces no constitutional effects.
6. It has no effect on the corneal epithelium.
7. It is strongly bactericidal in its action.

Per contra, cocaine distinctly reduces the tendency to hemorrhage, and it can be injected into the lacrimal sac, and often subcutaneously, with comparative impunity.

Such being the facts, it would certainly seem that, in the great majority of cases, holocaine should supersede cocaine as a local anesthetic in ophthalmic surgery.

A single word in regard to eucaine, which has also been proposed as a substitute for cocaine. Dr. Derby's opinion of its efficiency

is based on the following occurrence. He had operated in January of the present year on a lady of eighty for the extraction of cataract. Holocaine was used, and the operation passed off well, causing little or no pain. A month ago he undertook to remove the cataract on the second eye. His nurse, a graduate of the Infirmary Training School, had been used to cocaine, and had never seen anything else employed at an extraction. He was pleased to be able to call her attention to the advantages of holocaine, and promised her a proof of its anesthetic value on the present occasion. Greatly to his mortification, as well as astonishment, the patient complained bitterly of the pain, and asked him after the operation why it hurt so much more than it did the first time. On reaching home the mystery was explained. He had taken by mistake a bottle of a ten-per-cent solution of eucaine B, and had not noticed the substitution until his return.

But the author has found a possible use for holocaine that, as far as he is aware, has not yet been adverted to. It is based on its bactericidal properties, which were so carefully investigated by Heinz and Schlösser (*Klinische Monatsblätter*, Jahrg. xxxv, S. 117).

If the immediate cause of corneal ulceration is, in accordance with the present theory of suppuration, the invasion of the territory by microorganisms (Fuchs); if the ulcus serpens arises through infection of the cornea by organisms which give rise to a purulent inflammation (Fuchs); if so severe a remedy as the actual cautery has sometimes been efficient in bringing about a cure, why may not germicidal action be induced through milder means than the application of a high degree of heat or the clumsy and roundabout method of the subconjunctival injection of corrosive sublimate?

"On the development of bacteria," say Heinz and Schlösser (*loc. cit.*), "holocaine exerts an energetic restrictive influence. A 0.1-per-cent solution plainly retards putrefaction and fermentation; a half-per-cent solution prevents any development of bacterial germs; multiplying fission fungi are killed by a one-per-cent solution. One-per-cent holocaine is therefore an active antiseptic."

The use of holocaine in ulcers of the cornea seemed to be sufficiently indicated by the foregoing, and Dr. Derby began to employ it during the past year. His observations have been limited in extent, but thus far they have gone to convince him that holocaine has a therapeutic value previously unsuspected.

THE TREATMENT OF SCIATICA.

E. Radzikowsky (*Vratch*, No. 52, 1898) has obtained excellent results by the local application of muriatic acid in a series of cases of sciatica. He proceeded in the following way: The chief seat of the pains and all the other painful points along the course of the nerve and its branches are marked with a pencil, and a strong solution of muriatic acid applied. During these manipulations and for some hours afterwards the patient is kept in a horizontal position on his stomach. The effect soon showed itself in a great afflux of blood to the parts where the muriatic acid had been rubbed in, the tissues around the congestion being somewhat edematous. After the operation the patient was usually given a hot bath, which was well borne, and attended by great relief of the pains. As soon as the patient left the bath the parts were wrapped in a soft, simple dressing. Beyond the formation of vesicles at the seat of application, and in a few cases the presence of an inflammatory condition of the upper layers of the skin, no ill effects were observed; the vesicles quickly disappeared. The applications were usually repeated on the third, fourth, or fifth day, the average duration of treatment varying from four to thirty-five days. Marked diminution of the pains very frequently followed the first application, and their complete subsidence, even in cases of very old standing, ensued after four to ten applications. In some cases, however, anodynes had to be administered internally at the same time; these cases, as a rule, did not do well. By the treatment described the author claims to have cured many cases of sciatica which had resisted all other treatment. In such cases, where the complaints could be traced to a rheumatic, gouty, or inflammatory origin, the treatment was especially attended by favorable results. Mild cases were treated as out-patients; more severe ones, however, had to be admitted to the hospital.—*British Medical Journal*, Feb. 11, 1899.

DANGEROUS INCOMPATIBLES.

An important case, but with a sad sequel, has been reported to us by a correspondent in Johannesburg. The death of a young woman was caused by the administration of a medicine containing liquor strychninæ in conjunction with liquor arsenicalis. We do not know the precise circumstances of the case, but it should be instrumental in

drawing serious attention to the question as to whether such a combination should be given together in a mixture in a bottle. Of course the alkali of the liquor arsenicalis precipitates the strychnine in the form of the pure alkaloid, and the residue, which may amount to an excessively poisonous dose, may be taken in the last dose in the bottle. We have no hesitation in saying that such a mixture should never be dispensed, although we find it stated in books on dispensing that "liquor strychninæ and liquor arsenicalis are sometimes prescribed together. In this form the alkali of the latter precipitates the strychnine, so that a shake-the-bottle label must be used."* The risk, we consider, is too great to countenance such a mixture being dispensed. The alkaline solution of arsenic should be kept separate from the strychnine, and the two should be administered separately in equal quantities. The discretion of the public is too variable a factor to be relied upon to seriously observe the notice to shake the bottle in the case of mixtures likely to contain an extremely poisonous sediment. We may add that the use of the liquor arsenii hydrochloridi would obviate all risk of strychnine poisoning from precipitation.—Editorial note in London *Lancet*, Feb. 11, 1899.

PARALDEHYDE IN ASTHMA.

Dr. MACGREGOR says in the London *Lancet* of February 11, 1899, that as far as he has been able to find out, Dr. Mackie, of Elgin, was the first to suggest the use of, and to use, paraldehyde for the relief of asthma. "The fact that paraldehyde is a sedative largely eliminated by the breath" led him to try its effect in the spasm of idiopathic asthma. He administered it in a number of cases with uniformly successful results, and found that it speedily relieved the spasm and induced sleep. Dr. Macgregor's attention was drawn anew to this a few months ago, and since then he has given the drug in a fairly large number of cases of idiopathic asthma and other forms of spasmodic dyspnea, and his experience confirms that of Dr. Mackie. Dr. Macgregor says that no drug in his hands has given such satisfactory results. In the treatment of hospital out-patients suffering from asthma morphine hypodermically is out of the question, and it is not usually advisable to prescribe chloral in such cases. Paraldehyde is absolutely safe. It not only relieves the spasm, but it induces tranquil, refreshing sleep, without any objectionable after-effects. Besides, no evil results follow a prolonged use of paraldehyde; it does not give rise to a habit, and on this account it is a much more desirable drug than morphine or chloral. That it has hitherto not been much used in the treatment of asthma one may safely conclude from the fact that neither in Allbutt's "System of Medicine" nor in "Twentieth Century Practice of Medicine" is it mentioned among the drugs given as useful in the treatment of the disease.

THE TREATMENT OF HEADACHE.

Dr. JOSEPH COLLINS writes an article on this practical subject in the *Medical News* of February 18, 1899. He says that those headaches accompanying the infectious diseases do not call for any particular treatment aside from the measures taken to combat the infectious processes, while the treatment of headache due to the ingestion of vegetable or mineral poisons resolves itself into the very simple matter of preventing the further imbibition of the poison, be it tea, alcohol, tobacco, or poisonous substances administered therapeutically or encountered in occupations, and the elimination of any of the poison remaining in the system from the body. After that the headache disappears on the restoration of general, including neural, nutrition. To bring about this restitution of nutrition general tonic treatment is required. And meanwhile, the headache may be relieved temporarily by the administration of some of the prescriptions possessing analgesic properties. A formula that Dr. Collins often uses as a general tonic and stimulant in headaches following the infectious and exogenous intoxications is as follows:

Opii pulv., gr. ss;
Zinci phosphid., gr. ss.
M. Ft. pil. No. 20. Sig.: One pill three times a day.

Dr. Collins says that the tonic effect which one gets from this small quantity of opium is nothing less than remarkable. All the infections and intoxications, without exception, produce a more or less profound condition of general anemia, and this anemia must be reckoned with in estimating the nature and determining the treatment of the headache. Early in the treatment of such headaches some such searching tonic as the following should be administered:

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* *Vide* "The Art of Dispensing," fourth edition, 1889, p. 195, published at the offices of the *Chemist and Druggist*, 42 Cannon Street, E. C.

℞ Ferri et ammonii citratis, grs. xl;
Liq. potassii arsenitis, ♏ xl;
Syr. zingiberis, f ℥ ss;
Inf. calumbæ, ad f ℥ iv.
M. Sig.: Two teaspoonfuls after meals.

He is especially apt to give this mixture to children who complain of headaches following the infectious diseases, while for adults the mistura ferri ammonii acetatis is substituted for the citrate salt.

In the treatment of headaches resulting from the absorption into the system of some endogenous poison, such as that of diabetes, uremia, and the autointoxications and infections, the general measures to be adopted do not differ materially from those already spoken of. The headache is combated when the formation of the poison and its absorption into the system is interfered with. In this way diabetic headaches are treated by diet and by the utilization of remedies against the anemia and oligocythemia, while uremic headache is combated by measures that prevent the formation of urea, and by those that facilitate its excretion. In uremic headaches accompanying chronic interstitial nephritis of slow progression, Collins uses the following prescription as a diluent and diuretic with good effect:

℞ Potassii citratis, f ʒ ij;
Tinct. hyoscyami, f ʒ ij;
Spt. etheris nitrosi, f ʒ ij;
Inf. scopariæ, f ʒ vj.
M. Sig.: Tablespoonful in water three times a day.

If it is necessary to increase vascular tension, infusion of digitalis may be added to this mixture.

Headaches arising from such intoxication as that of ammoniemia require only local treatment of the cystitis and the institution of measures to combat the anemia.

Headaches arising from autointoxication, the original source of the disease being stomachic and intestinal catarrh, functional perversion of the glands supplying the digestive juices, or through the activity of non-pathogenic bacteria, taken in from outside, form an important class, and one that is happily rather amenable to treatment. It must suffice in this connection to say that after the general measures for the regulation of the alimentary tract and its associated functional dependencies, such as the overcoming of constipation, the adoption of suitable diet in catarrhal conditions, the stimulation of the liver to the production of a suitable kind and amount of bile, the exhibition of substances that contribute to the restoration of the pancreas and spleen, the treatment consists in the administration of substances that correct the apparent troubles of digestion and of substances that quell the headache. A favorite prescription of Dr. Collins' for headache associated with flatulency and pyrosis is the following:

℞ Sodii bicarb.,
Bismuthi subgallate,
Pulv. acaciæ, each ʒ j;
Liq. ammonii anisi, f ʒ ij;
Aqua dest., ad f ℥ viij.
Sig.: Two teaspoonfuls before meals, repeated in three hours if necessary.

In headaches associated with atonic dyspepsia, but without any considerable flatulency, Collins makes use of the following pills, and especially in the headaches occurring in women:

℞ Ferri sulphatis,
Quininæ sulphatis, āā grs. xv;
Sodii arsenitis, gr. ss;
Pulv. rhei,
Pulv. zingiberis, āā grs. x.
M. Ft. pil. No. 12. Sig.: One pill three times a day after meals.

The treatment of headaches due to disease of the circulatory system requires considerable discussion, not so much because of their frequency as because of the fact that if they are properly interpreted they yield readily to treatment. The headaches that accompany organic diseases of the heart, whether they be associated with excess or deficiency of propulsive power, naturally require treatment directed to that organ, as does any pulmonary condition which interferes with the return cerebral circulation. Headaches occurring with functional disturbances of the heart are oftentimes very amenable to therapeutic measures, not drugs. For instance, a heart that is working violently as the result of great physical effort or excitation of mind or body may be so quieted by the application of a simple cold-water compress to the cardiac region that the accompanying frontal throbbing headache disappears promptly, and the efficaciousness of stimulating foot-baths and hot sitz baths in combating a headache of increased vascular tension within the skull is very well known. It is rarely necessary to administer the more powerful cardiovascular depressants in cases of this kind, the required equalizing of the circulation being obtained by hydric procedures and the administration of a few doses of the bromides. When headache is an accompaniment of a sluggish circulation, there being no deficiency in the amount of the blood and no alteration of its constitution, the diffusible stimulants, caf-

feine and strychnine, may be relied upon to bring about its prompt relief. Cannabis indica is a drug that he frequently uses with good effect in this form of headache. The method of prescribing it is in the following pill:

℞ Ext. cannabis indicæ, gr. ⅓ to ss;
Ext. gentianæ, q. s.
M. Ft. pil.

Headaches that are dependent upon a general anemia are oftentimes extremely resistant to treatment, and although temporary improvement usually follows tonic and stimulating treatment, the anemia must be fought unswervingly for a long time to effect a complete cure, and to stay the recurrence of the headache. These headaches are usually accompanied by a very slight sluggish condition of the digestive tract, to combat which he has used with very good results the following combination of tonics and laxatives in the shape of a dinner pill:

℞ Quininæ sulph.,
Ext. aloes aq., āā grs. xij;
Pulv. capsici,
Pulv. ipecac, āā grs. vj;
Glycerini, q. s.
M. Ft. pil. No. 12. Sig.: One pill at midday.

Or, if associated with considerable vital depression, he uses the following pill instead, giving at the same time some absorbable form of iron:

℞ Ext. nucis vomicæ, gr. ss;
Pil. rhei comp., gr. iij;
Pulv. capsici, gr. ¼.
M. Ft. pil. Sig.: One pill at midday.

Naturally it is very often necessary to give at the same time, for its immediate effect, some analgesic or a combination of these with a stimulant, such as caffeine, and such a prescription as one given above, containing caffeine, phenacetine, and salol, usually meets the requirements.

CEREBRAL INJECTIONS OF ANTITETANIC SERUM.

The good results obtained in the treatment of diphtheria by means of serum-therapy have encouraged similar and persistent attempts in the treatment of nearly all the infectious diseases. Tetanus, one of the most fatal of the entire group, has not been omitted in these investigations. Not content with the comparative failure which attended subcutaneous injections, the antitoxin was tried intravenously, but still the results were by no means promising. The researches of Roux and Borrel, at the Pasteur Institute, Paris, led them to these conclusions: "The tetanus antitoxin, when injected into animals, remains in the blood, whereas the toxin (previously absorbed) is extracted from it and 'fixed' by the nerve cells. The antidote does not come in contact with the poison, and the two substances, though so near each other, fail to meet. The serum is efficacious against the toxin which is placed under the skin because the greater part of it enters the blood, but it proves powerless against the poison that has already reached the nervous elements" (Dr. Rambaud, in the *New York Medical Journal*, Dec. 17, 1898).

We now readily understand the whole difficulty. The subcutaneous and intravenous injections were productive of so little good merely because they did not reach the seat of trouble save in the minutest amount. As a rule, subcutaneous injections have not been resorted to in cases of tetanus until the disease has been well advanced—that is to say, until a great part of the toxin manufactured by the tetanus bacilli has been "fixed" in the nerve cells. In order to reach these nerve units, the toxin must travel the route of the circulation, so that when any good has been accomplished by the subcutaneous and intravenous injections, it has been through the neutralizing effect upon these toxins within the circulation, but little if any effect being produced upon the toxins "resting" in and exerting their deleterious action upon the nerve cells.

If this theory be true, the only hope of success with subcutaneous or intravenous injections lies in their early application, thus keeping the blood in a diluted antitoxic state until all danger of absorption of toxins from the original site of infection is past. If, however, the opportunity for thus combating the toxin while in the blood-current be neglected, the only hope of reaching it efficiently must be through some method that brings the antitoxin face to face with the toxin in the cells of the cerebrum. Suiting the action to this logical conclusion, the bold experiment was undertaken of injecting tetanus antitoxin directly into the brain substance, and with gratifying results. Rambaud has collected reports of twelve cases in which the intracerebral method of injecting tetanus antitoxin was followed, and the results recorded have been far better than those of any other plan of treatment thus far produced—five recoveries. Of these twelve cases, three of the patients were treated in this country, with a

mortality of two, but the histories given of the latter demonstrate that neither was a fair example on which to rest the value of the treatment, as one was dying at the time of the injection, while the other, though apparently recovering from the tetanus, succumbed to renal disease, a concomitant of a general septic condition into which the patient had fallen. In the patient who recovered, reported by Church, the tetanus developed twelve days after the primary injury, a large lacerated wound of the leg produced by glass broken during a severe fall. Six days after onset—that is to say, when the poison had become fixed in the nerve cells—antitetanic serum was used subcutaneously, but with little benefit. Improvement being but temporary, it was decided the next day to make an injection of the serum into the frontal lobe of the brain. After trephining the skull, which was done under antiseptic precautions, sixty minims of the serum was slowly deposited to a depth of more than two inches, the entire injection taking longer than ten minutes. The subsequent history was comparatively uneventful, the patient making a good recovery.

If we accept the observations of Roux and Borrel, the neutralizing of the poison stored in the brain tissue by injection of an antitoxin into this tissue is also to be accepted. Indeed, the good results obtained by means of this method after subcutaneous and intravenous injections have failed would go far to show that these observers are correct. It would seem, also, that the right thing to do in all cases of tetanus, regardless of their mildness or the reverse (all cases of acute tetanus must be considered grave at any stage), to proceed at once to the intracerebral injection, at the same time not neglecting to neutralize the poison in the blood by subcutaneous or intravenous treatment, or both.—Editorial in *Medical News*, Feb. 18, 1899.

THE TREATMENT OF PATIENTS SUFFERING FROM PULMONARY TUBERCULOSIS WHO CANNOT GO AWAY FROM HOME.

The *Medical News* of February 25, 1899, has in it an article by Dr. ROCHESTER upon this subject. He says as far as his experience goes nuclein, administered hypodermically, is the best remedial agency in early cases. He has several cases of apparent cure from this treatment. Among remedies administered by the mouth, creosote, or some of its derivatives, still stands at the head of the list. In the administration of creosote it is important in the first place to secure a pure article, to administer it regularly, always after food, to increase the dose gradually but regularly, carefully watching the urine, as well as looking for gastric disturbance. He has given as much as two cubic centimeters at a dose three times a day for three months in this way. The gradual reduction of the dose is as important as the gradual increase in its size, the sudden stopping of the large dose sometimes producing very unpleasant results. The carbonate of creosote has not been of any greater value than the pure creosote, nor has it been better borne by the stomach. The same may be said of the carbonate of guaiacol as compared with guaiacol. In some cases guaiacol can be taken where creosote cannot. When there is a great deal of pus in the sputum terbene combined with the guaiacol is often of value. Balsam of copaiba is also often of great use under similar circumstances. It can be easily administered in emulsion with mucilage of acacia and syrup of tolu. In cases in which there is marked intestinal fermentation or gastric intolerance of pure guaiacol, the benzoate of guaiacol is often tolerated and acts very well. It can be given in doses, gradually increased, of from 0.25 to one gramme, three times daily, in capsules. In all patients in whom it does not produce gastric or intestinal disturbance cod-liver oil is still our sheet-anchor in the medicinal treatment of phthisis; nothing has yet been found which can take its place. The pure oil can be taken by some individuals, but not many. An emulsion can generally be made which will be tolerated by the stomach. After taking cod-liver oil for a while, whether pure or in emulsion, the individual generally becomes accustomed to it to such a degree as actually, in many cases, to like it. In these days of proprietary medicines and made-up emulsions, which are said to be strictly ethical, and are said to contain thus and so, whose working formulæ, however, are not published, many physicians are losing the art of prescribing; but really a freshly made emulsion, put up by a competent pharmacist, is much to be preferred to all others.

Special symptoms in some cases call for special treatment. Rochester refers briefly to some of these. Pain in the chest is not infrequently a troublesome matter. Its cause should be searched out. If due to pleurisy it should be treated by strapping or dry-cupping the chest; if it is a neuralgia it is

best relieved by aconite ointment locally, general treatment, and building up of the general resisting power. Sometimes the local use of iodine in ointment or tincture seems to be of avail, but in such cases it seems to him that time is as much a factor as the iodine. Cough is a necessary concomitant of pulmonary tuberculosis, and should not be too rashly interfered with. A troublesome, irritating cough with little or no expectoration is generally due to pleurisy or some disturbance of the upper air-passages, and treatment should be directed accordingly. Cough is best treated by inhalations, such as have been suggested, or by the administration of hydrocyanic acid and chloroform water. Cough is frequently a matter of habit and can be prevented by mental discipline. The administration of cough mixtures containing stimulating expectorants and opium should be avoided as far as possible. It is very seldom that the stimulating expectorant has any place in the treatment of phthisis, and opium and its derivatives are absolutely out of place, except in advanced cases beyond recovery, in which nothing can take their place. To a patient in advanced phthisis opium is truly the great and good gift of God to man. Hemoptysis is best treated by rest in bed and the administration of morphine and atropine hypodermically.

The fever of tuberculosis is best treated by the sponging and general plan of treatment already suggested. The use of antipyretics is to be deprecated. Sweats are best combated by general treatment and the baths and induced sweats referred to, but they sometimes call for special treatment. Dr. Rochester says in his hands nothing can equal atropine in the relief of this distressing symptom.

Of the gastric symptoms requiring special treatment vomiting is the most distressing. Sometimes it is absolutely necessary to put the patient to bed in such cases. Careful investigation of the stomach with the tube is sometimes of value. In severe cases of vomiting in phthisis, however, whether induced by cough or not, large doses of cerium oxalate, one gramme at a time, are of especial value. Of the intestinal symptoms diarrhea is the most serious. If the general treatment as outlined does not relieve this condition, benzoate of guaiacol is our most useful drug. In the distressing diarrhea of advanced phthisis, however, nothing can take the place of the lead and opium pill.

In closing his remarks Rochester makes a plea for the careful study of individual cases and the use of treatment especially adapted to each particular patient, and the avoidance of routine treatment of cases of pulmonary tuberculosis.

ARREST OF HICCOUGH BY DEPRESSING THE TONGUE.

The *Maryland Medical Journal* of February 25, 1899, contains an article by KOLIPINSKI with this title.

Hiccough, like vomiting, is often so severe and persistent that credit or discredit is bestowed on a physician in a case dependent on his ability to stop it. The method described below is offered that further trial may demonstrate whether it possesses sufficient value to be included in the list of means at present in our possession for checking this troublesome and often distressing symptom, common alike to a number of curable and fatal diseases.

C. H., fifty-nine years of age, a shoemaker of vigorous constitution, but somewhat impaired by the long-continued use of alcoholic intoxicants, had suffered from chronic gastritis. December 14, 1898, he was able to go to work, but complained of headache, vomiting, and oppression of the chest. A persistent hiccough began. That night he could obtain but little sleep. The next day he was not able to eat his meals. The hiccoughs growing worse, he took some remedies of an apothecary and also sent for a physician. He made an attempt at his daily work, but soon gave it up and returned home. He slept but little, the hiccough being so violent that his bed shook, and he passed the night mostly sitting up. Various home remedies were next tried, but without relief.

On the 16th patient found himself too weak to work, and remained in bed, passing another sleepless night. December 17, condition the same; he went to his shop, but had to return home. He had no sleep at night, but was "up and down." His throat felt swollen and full, so that he suffered much from dread of death by suffocation.

December 18 the condition was the same. Dr. Kolipinski saw the patient that night. He was much alarmed, and declared the hiccough was killing him. Dr. Kolipinski tried to reassure the patient, and directed him to breathe slowly, lying supine, and to extend his arms above his head. The hiccoughs caused a tremor of his whole body.

Patient complained of the fulness in his

throat, a condition which he thought the result of the hiccough. Dr. Kolipinski directed him to sit up, and with a large spoon-handle, pressing the tongue down and back with steady force, was enabled to inspect the fauces. He found the soft palate congested and the uvula thickened and elongated. The hiccough recurred twice, and each time could be noted the elevation of the soft palate and uvula in the act. He continued the firm pressure on the tongue with the hope of further noting the action of the palate muscles, when to his surprise and to the patient's great astonishment and joy the hiccough ceased. Under a dose of morphine and chloral he passed a comfortable night.

An hour after Dr. Kolipinski's departure the hiccough returned, but the patient with great zeal and confidence placed himself in front of a mirror, passed the spoon-handle to the back of the tongue, and with both hands depressed and steadied it. The hiccough at once ceased. In the morning, on awakening, the hiccough returned, but stopped spontaneously on his getting up and dressing. Two days later it reappeared, but was promptly arrested by the patient himself in the manner described. The time required in each instance to accomplish the desired result was one minute or less.

BLINDNESS FOLLOWING THE INTOXICATING USE OF JAMAICA GINGER; REPORT OF SIX CASES.

HIRAM WOODS, JR., reports these cases in the *Ophthalmic Record* for January, 1899. He thinks that in studying his cases with reference to the lesion present and its cause, Thomson's case can be advantageously added. They may be regarded with reference to their history and previous condition. All of the seven, except Chisolm's patient, were periodical drinkers. He was addicted to sprees in addition to the daily moderate use of stimulants. In only two (Cases 2 and 6) was tobacco used immoderately. In but one was there systemic trouble (albuminuria with casts) to which blindness could be attributed even indirectly. The manner of its appearance was entirely unlike the usual ocular manifestations of chronic Bright's disease. In only one (Chisolm's) was there reason to suspect a previous toxic amblyopia. It seems safe to conclude that in none of the seven were there conditions apt to produce such effects as followed the ingestion of the ginger.

The cases may be further studied from the standpoint of intoxicants employed. Jamaica ginger only was used in Thomson's and Case 1. Case 6 drank ginger and other substitutes for liquor. A half-ounce of alcohol was the sole intoxicant besides ginger used by Case 3. Cases 4 and 5 had drunk liquor five and seven days respectively before the onset of eye symptoms; had been over its intoxicating effects several days, and had imbibed freely of ginger only and of ginger and other adulterated drinks just before blindness came. Case 2 drank whiskey and ginger indiscriminately to the last. It is seen that ginger is the only intoxicant used by all; that, barring the half-ounce of alcohol in Case 5 (which, probably, had little influence) and the whiskey used by Chisolm's patient, ginger and other adulterated alcoholic drinks were the only agents used in immediate connection with the appearance of blindness. A third point of interest is the mode of onset. Save in one case, the first evidences of trouble were gastric pain, nausea, headache, twelve to forty-eight hours after ingestion of ginger. Then came dimness of vision, rapidly followed by total blindness.

Regarding the nature of the lesion, Thomson thinks it is an acute retrobulbar neuritis. Attributing, as he does, the whole picture to alcohol, he blames the dimness of vision on the first day to an alcoholic "central scotoma, negative in character, for color, not form." He attributes the increasing blindness to rapidly increasing pressure on axis cylinders, improvement after several days to absorption of the effusion, the macular bundle remaining more seriously affected on account of its deep situation in the nerve, and consequent exposure to greater pressure. The permanent central blindness he attributes to consecutive atrophy of the macular fibers. In two of Dr. Woods' cases, both of which went on to complete atrophy, the neuritis was far enough forward to show as a papillitis.

THE TREATMENT OF PNEUMONIA.

We published about three years ago a series of papers upon the treatment of pneumonia adopted in various children's hospitals of this country. We have also published a long discussion upon the treatment of the same disease in hospital and private practice. Although opinions differ more widely upon therapeutics than upon any other subject in

medicine, the essential methods advocated in these various papers were more nearly uniform than might have been expected. It is evident that the same general principles underlie the treatment adopted by most men of large experience. All agree in the fact that in infants pneumonia usually reaches a fatal termination by exhausting the vital power, and that every means, therefore, should be utilized to conserve that power. The digestion is easily deranged, and the appetite impaired. Any drug, therefore, be it ever so efficacious in relieving cough or other symptoms, if it disturbs the digestion or destroys the appetite, may result in more harm than good. As there is doubt regarding the power of any drug over the disease, it is not strange that drugs should be used but little by the men of largest experience. It is true that certain medicines are of great value in combating certain complications, but it is yet to be proved that any medical agent possesses a controlling influence over the disease *per se*.

There can be no doubt that cases are sometimes lost through overzealousness. Through the desire to leave no means untried, medicines and doses are multiplied, local applications are vigorously employed, the temperature is taken with unnecessary frequency, and the little patient is kept in a continual state of disturbance and excitement and is literally worn out for the lack of necessary rest and sleep.

While there is no specific treatment for pneumonia, there can be no doubt that many lives are saved by proper management. Careful feeding and hygienic management, counter-irritation and inhalations, and judicious stimulation, will save more children from death by pneumonia than can be saved by the filling of weak and irritable stomachs with irritating or nauseating drugs.

In a recent discussion upon the treatment of pneumonia in children Dr. L. Emmett Holt thus summarized his views: (1) No depleting measures are ever admissible; (2) hygienic treatment is indicated, such as fresh air, proper feeding, and good nursing; (3) no unnecessary medication is permissible; (4) many annoying symptoms may be relieved by local measures; (5) the administration of stimulants should be determined solely by the condition of the pulse; (6) high temperature is much more safely and effectively controlled by cold than by drugs; (7) greater caution is necessary in the use of powerful drugs than is generally observed; and (8) rest is quite as important as in any other serious disease.—*Archives of Pediatrics*, February, 1899.

THE CONDUCT OF THE HEART IN THE FACE OF DIFFICULTIES.

The *Medical Press and Circular* of January 18, 1899, contains an article on this topic by Sir WILLIAM BROADBENT. In discussing this important theme he first draws attention to the difficulties arising out of flatulent distention of the stomach or colon or intestinal canal, which will generally require some attention, since they are the cause of most of the functional derangements to which the heart is subject, and give rise to the heart complaints which occasion in the aggregate perhaps more suffering than does actual heart disease. The heart often tolerates a considerable degree of upward pressure of the diaphragm, and it is not uncommon to meet with stomach resonance as high as the fifth space, and to find the apex beat displaced upwards and outwards to the fourth space and outside the nipple line without conspicuous symptoms. But the heart behaves very differently in different subjects in the presence of flatulent distention of the stomach. It partakes of the general constitutional condition of the individual. In the strong, therefore, it is vigorous; in the weak it cannot be anything but weak. Then the heart has very special relations with the nervous system; it reflects every emotion, beats high with courage, is palsied by fear, throbs rapidly and violently with excitement, acts feebly under nervous depression. But it is not only through the cerebrospinal system that the heart is influenced; it is in immediate relation with the vasomotor nervous apparatus, and in a scarcely less degree with the sympathetic system generally. Normally afferent impulses are brought from the viscera to the central nervous system, by means of which their blood-supply is regulated, and their functional activity governed. These afferent impulses when perverted by functional derangement or disease may become serious disturbing influences. But the nervous system in a large and increasing proportion of people is unduly sensitive and excessively mobile, and the reactions to influences of every kind are exaggerated. A little emotional excitement gives rise to palpitation; a piece of bad news or the bang of a door seems to stop the heart altogether. There is in such subjects no form or degree of

cardiac disturbance which may not be caused by indigestion, scarcely any symptom of cardiac disease which may not be simulated. Add a touch of hysteria on the lookout for symptoms and for some one to give ear to the relation of the unparalleled agonies of the sufferer, and the difficulties of the heart, and it may be added of dealing with them, are complete.

It is of course of the greatest importance that we should be able to distinguish these functional affections of the heart from troubles due to organic disease, and this is especially the case where there is severe pain in the cardiac region. The absence of physical signs of valvular or structural change will be a help, but murmurs may be present at one or more of the orifices during palpitation when there is no valvular affection, and there may be actual mitral or tricuspid incompetence when all the symptoms are really of neurotic or dyspeptic origin.

Angina pectoris is one of the cardiac affections which may be closely simulated by the effects of dilatation or functional derangement of the stomach. The first question to be put in a case of cardiac pain of anginoid character is as to the circumstances under which it comes on—whether as an effect of exertion or during repose. The earlier attacks of true angina are practically always provoked by exertion, while spurious angina is specially liable to come on during repose. It is true that angina when established may come on in the night, or may be induced by the act of undressing and the contact of cold sheets, but there will be a history of attacks during exertion. Pain and a sense of suffocation may also be brought on by the pressure of the abdominal viscera reenforcing that of a distended stomach on lying down whether the heart is diseased or sound, and a weak heart may actually be brought to a standstill in this way. Speaking generally angina pectoris in a woman is always spurious, and the more minute and protracted and eloquent the description of the pain the more certain may one be of the conclusion. Again, when palpitation or irregular action of the heart, or intermission of the pulse, or pain in the cardiac region, or a sense of oppression, follows certain meals at a given interval, or comes on at a certain hour during the night, there need be little hesitation in attributing the disturbance, whatever it may be, to indigestion in one or other of its forms. Nightmare from indigestion is not a bad imitation of true angina. So also if any cardiac symptom or pain can be walked off, it may usually be set down as functional, and due to some outside disturbing influence or to nervous irritability. The same may generally be said of intermission of the pulse, of which the patient is conscious, and, though with less confidence, of irregularity of the heart's action—if the patient feels it the irregularity is usually temporary, and not the effect of organic disease.

In these functional affections it is not the heart which is to blame; it is more sinned against than sinning, and if its difficulties are removed there will be nothing to find fault with in its conduct. The difficulties are, as has been said, the state of the nervous system, on the one hand, and of the digestion on the other, and according as the neurotic or the dyspeptic element predominates will be the treatment required. No details need be entered into, but one observation may be made. Patients suffering from those functional derangements of the heart usually make them a pretext for avoiding exercise and fresh air and often for taking stimulants or drugs, whereas exercise and fresh air are what he or she most needs. The best way to prevent the expenditure of superfluous energy on the part of the heart in the form of palpitation is to give it a fair amount of legitimate physiological work to do; and to relieve one attack of palpitation or faintness by alcohol is to invite another, while the terrible danger of drifting into alcoholism is incurred.

One of the most common difficulties with which the heart has to contend is high arterial tension, or rather the obstruction to the onward movement of the blood in the capillaries and arterioles, which is the cause of the high pressure in the arteries. While dyspeptic troubles and other reflex sources of irritation give rise merely to functional affections of the heart, high arterial tension when persistent is a frequent cause of actual disease. The resistance in the peripheral circulation has to be overcome, and the heart rises to the occasion. It puts forth the increased energy required, and in doing so becomes hypertrophied. Hypertrophy is not disease, though sometimes the heaving impulse and powerful throb of the apex are complained of by the patient and looked upon with suspicion by the medical man; but the development of additional muscular fiber is accompanied by the development of increased connective tissue, and when in the decline of life the nutrition of the more highly organized structures is no longer vigorous, the fibroid element may gradually predominate over the

muscular, or fatty degeneration may take place.

But the valves may suffer before the muscular walls. Where greater force is required to propel the blood into the aorta there is greater strain upon the mitral valves during systole, and a more violent recoil upon the semilunar aortic valves during diastole. This gives rise to chronic inflammation of the valves, with thickening and contraction, and, in the long run, insufficiency.

Dr. Broadbent says it is necessary to mention high arterial tension on account of its frequency and importance as a source of cardiac difficulty, but he has dealt with it so often and so recently that he will forbear from further dwelling upon it on the present occasion, only remarking that the recognition of unduly high pressure in the arteries affords one of the most valuable indications for treatment in a great variety of conditions. He says he is afraid it often escapes recognition, and sometimes digitalis is given for the relief of the cardiac discomfort which may attend it. This is like knocking the head against a stone wall, for digitalis not only acts on the heart but tightens up the vessels, and so increases the obstruction, which is already too great.

Coming now to the serious difficulties to which the heart is exposed by reason of damage to one or other of its valves, we discover, say, a systolic murmur at the apex or at the right second intercostal space, indicative of leakage of the mitral valve or of interference with the blood-current at the aortic orifice. What are we to do? Frighten the patient out of his life or out of his peace of mind? Condemn him at once to live on one floor, and forbid him exercise and excitement and all that makes life tolerable, and give digitalis? Certainly not. Or shall we ignore the murmur on the chance that it may not be serious, which is not an uncommon proceeding when a medical man has predicted sudden death once or twice, and found the patient to go on living for ten or twenty years? This would be equally unreasonable.

The first thing to be done is to ascertain what the murmur really means — whether, when it is mitral, there is much or little regurgitation, or, if aortic, whether it signifies mere roughness or actual constriction. Numerous considerations enter into the determination of these questions, of which we need specify only those arising out of the conduct of the heart. If, in the case of mitral incompetence, there is any considerable reflux into the left auricle, the first effect will be damming back of the blood entering it by the pulmonary veins, and the obstruction thus created will make itself felt in the pulmonary artery, raising the blood-pressure within it. There is no branch of the pulmonary artery on which we can place our finger or a sphygmograph but the high pressure is at once accused by accentuation of the pulmonic second sound. If the circulation is to be maintained under these circumstances something must be done to overcome the obstruction in the pulmonary circulation and neutralize the mitral reflux. This can only be by increase in the capacity and strength of the right ventricle. The right ventricle accordingly becomes dilated and hypertrophied, and the dilatation and hypertrophy, which we call compensatory, become for us the measure of the regurgitation. This is the conduct of the heart in the face of this particular difficulty, and we learn from the amount of compensatory change required to neutralize the effects of the valvular lesion whether the lesion is severe or slight; our conduct then will be guided by the degree of efficiency of the compensation. When there is no appreciable hypertrophy of the right ventricle, or marked accentuation of the pulmonic second sound, and the patient has no heart symptoms, the murmur means nothing, and there is no need to interfere in any way with the patient's mode of life even if this includes hunting, or climbing, or swimming, or cricket. Dr. Broadbent says he should draw the line at football or training for races of any kind.

If with marked hypertrophy and dilatation there is still no breathlessness on ordinary exertion or other circulatory symptoms the regurgitation is considerable, but it is neutralized by the compensatory changes. We are not called upon to do anything, but the patient must be warned that the compensation may easily be broken down, and that a single imprudent act of violent or sustained exertion may do irreparable injury.

Cardiac symptoms, such as breathlessness on slight provocation, show that the compensation is inadequate, and it is only by great carefulness that the serious effects of the valvular lesion can be put off. Let us suppose that we have the heart landed in extreme difficulties from incompetence of the mitral valves, the liver enlarged till its lower border crosses the abdomen at the level of the umbilicus, the veins of the neck distended and

pulsating, the face and lips livid, the lungs congested, the legs dropsical, the urine scanty, turbid, and albuminous, the patient gasping for breath and unable to lie down. It is in mitral incompetence that digitalis and such like remedies find their opportunity. But first the right side of the heart must be relieved from the overdistention which is paralyzing its efforts. Unless this is done the digitalis may simply help the straining ventricle in the work of self-destruction. The nearest approach to a modern therapeutic miracle is seen on bleeding in a good case of this kind. Dr. Broadbent says by a good case he means one in which the onset of the severe symptoms has been sudden under the influence of some adequate exciting cause, such as overexertion or chill, in a fairly robust subject with a powerful right ventricle. The venesection must be followed up by a good calomel purge, two or three grains of calomel, with, say, five of colocynth and hyoscyamus, and perhaps a dose of a saline purgative. Bleeding, however, is too heroic a method for these degenerate days, and it is not always easy to say whether it is really demanded. A good alternative is six, eight, or a dozen leeches over the enlarged liver, followed up of course by the calomel purge. In less severe cases we may content ourselves with the mercurial aperient.

The right heart having been relieved, digitalis may be given with excellent effect in different combinations, according to the condition, with nux vomica and ammonia and perhaps ether, or with acetate of iron and potash. If the edema is considerable it should be drained off by Southey's tubes, and any pleural effusion should be withdrawn by aspiration at an early stage.

Mitral incompetence will serve as an illustration of the difficulties imposed upon the heart by disease of the valves. They differ in the different valvular affections, and the heart responds in a special way for each one. The principle which he wishes to emphasize is that when the heart is in difficulties, we can generally do more for the relief of the patient indirectly by removing the difficulties than directly by aiding it to overcome them. This is the case whether the disturbing influence is external to the heart, as, for example, a dilated stomach or distended colon, or resistance in the peripheral circulation, or is a secondary effect of disease of the heart itself, as illustrated by overdistention of the right ventricle. Or, to take another instance, if the heart is in a state of fatty degeneration it is useless to give cardiac tonics; but its work can be diminished by keeping down the arterial tension, and a fatal issue may be for a time averted by preventing distention or dilatation of the stomach. Such illustrations might be multiplied indefinitely.

When, therefore, we are considering the treatment of cardiac disease or disturbance, the first question to engage the attention is how we can relieve the laboring or harassed heart by the removal of some condition which is causing or aggravating the difficulties with which it is contending. In doing this we often put an end to the symptoms which have given rise to suffering and anxiety, and in all cases we make the action of digitalis or other cardiac tonics more efficacious.

THE PRESENT STATUS OF THE ANTI-STREPTOCOCCIC SERUM.

In the *Boston Medical and Surgical Journal* of February 2, 1899, COTTON gives an interesting study of this subject. As he well says, with so large a number of clinical cases on record it would seem possible to draw some conclusions, but unfortunately many of the cases are not so presented as to be of any particular value, and such conclusions as can be drawn must be mainly negative. Before drawing conclusions as to the value of any remedy one must either see its effect in disease ordinarily running a definite typical course, or there must be a decided drop in a heavy mortality, or else an opportunity to compare long series of cases with and without the given treatment under otherwise like surroundings. In the present case the first two conditions are in no way fulfilled, the third only apparently; apart from Marmorek's own cases, a large proportion of the cases of all sorts have been reported in ones or twos by different observers. This is at best a poor way of getting statistics, and here especially unfortunate, since these are just the sort of cases where the personal equation should enter in as little as may be. This criticism applies to all the series recorded, with the exception of the scarlet fever cases. This scarlet fever series we can set aside; the case is not proven, and is at best not really relevant. Nor is much to be made out of the cases of local and postoperative sepsis; serum and surgery are too hopelessly mixed.

The cases of general infection, puerperal fever, and erysipelas are more directly available.

In the series of cases of general sepsis

there are some in which the diagnosis is not quite satisfactory; others, on the other hand, of recovery, which is surprising under the conditions actually shown. Cases recovering after streptococci were found in the blood are surely striking, but it must not be lost sight of that the clinical course of these cases was not unusual, the happy result not always very directly attributable to the serum, and that such recoveries are not entirely unknown where no serum-therapy has been employed.

In the puerperal cases the difficulties are: (1) the cases are mainly isolated observations by different observers; (2) many cases reported are without any bacteriological evidence; (3) the course of puerperal fever is most varied, the prognosis notoriously uncertain; (4) many of the reported cases were efficiently treated surgically as well as by serum.

It is hard to draw just conclusions under these circumstances. The mortality, 32.3 per cent, cannot be called low, even granting that the series includes many desperate cases. It is perhaps not fair to compare this with any ordinary series of cases of puerperal sepsis, but certainly on such figures as a basis there can be no talk of any considerable reduction of mortality.

In individual cases the use of the serum would seem to have helped definitely, but these are more than counterbalanced by cases of streptococcus infection alone where no effect whatever is to be attributed to the serum. The irregularity of course in puerperal fever, the difficulty of distinguishing the results of other treatment from those of the serum, cannot be too clearly borne in mind.

In a proportion of cases, however, there does appear, apparently as a definite result of the use of the serum, a marked improvement in the subjective condition, in the pulse, and often in the temperature. This is by no means constant, and apparently bears little if any relation to the general course of the infection, but it seems definite and must mean something.

In the erysipelas cases, again, the mortality figures are not convincing, for, as Therese points out, the ordinary mortality varies from one to five or six per cent, while Marmorek's figure was nearly four per cent.

Here again there appears the same improvement in subjective condition, pulse, and temperature following injections, but more often in this erysipelas series, and often accompanied by a rapid improvement in the local process. This is noted by Rondot as well as by Marmorek. Unfortunately, even here, Petruschky's experiments with inoculation erysipelas and serum must make us a little conservative in interpreting the clinical notes.

Probably no one will now contend that the antistreptococcic serum is, broadly speaking, effective against streptococcus infections. Beyond a doubt a certain degree of passive protection is possible in the laboratory, and probably something of the sort is possible in man. There seems, in view of recent work, no ground for drawing sharp distinctions between alleged species of streptococci, and though it would be a mistake to assume too close a parallel between the conditions of infection in man and in animals, yet probably a serum really effective in protecting rabbits against streptococci would afford some aid to the human organism in its struggle against a like infection. It is likely enough that this is the explanation of the temporary relief of symptoms so often noted. It does not seem that this represents a strong action against the infection, but it is something, and in many cases a very little may turn the tide.

This seems reason enough to give the serum further trial—as a symptomatic treatment if no more. There seems to be no good reason against its use. Urticaria, erythema, joint pains, etc., are of not uncommon occurrence, but of no great moment. Abscesses at the point of injection, sometimes containing streptococci, are not rare, and would indicate care in using a bacteriologically tested serum. Bué and Thomson have thought the serum a cause of albuminuria, but this must be either unusual or slight, judging by reports.

If the serum is to be used in earnest, it should be used in considerable doses. Probably in many cases the dosage has been too small. To protect a rabbit against a ten times fatal dose required 0.2 centimeters of antistreptococcic serum; this is one seven-thousandth the body weight, corresponding to about ten centimeters in man. The potency of different makes of serum varies, and they seem to lose notably by keeping. Hence, while there are no accurate data for dosage in man, yet the problem is not to protect against an infection, but to cope with an infection in full swing, and that with a serum of doubtful efficacy; the needed dose will probably be large, if anything is to be accomplished. The limit of dosage must vary, but the untoward effects above noted are not

frequent, and plenty of cases have borne twenty-five cubic centimeter doses. In one case a total of 1030 cubic centimeters was given, though this was in a case of some duration; there were no ill effects beyond a slight erythema.

There seems, then, some reason for continuing the use of the serum in cases of demonstrated streptococcus infection. Care is needful in selecting the serum to be used; it should be used, if at all, in considerable amount; and above all, until more evidence of its power is forthcoming, it should be used as an adjunct only, and never to supplant or modify other treatment of the case.

WHAT TO DO AND WHAT NOT TO DO IN THE TREATMENT OF CERTAIN OF THE MOST FREQUENT EAR AFFECTIONS.

The *Journal of Eye, Ear, and Throat Diseases* for January, 1899, contains an article by HAUG upon this topic. He thinks that foreign bodies in the ear are of the most frequent occurrence, and that they occur usually in children, but still are found often enough in adults, introduced either from thoughtlessness or to afford relief from earache, and especially toothache. A comprehensive enumeration of the objects that gain entrance into the meatus through accident or intent would be unlimited. They include the most common objects that are accessible, and vary with the country in question (beans, peas, buttons, beads, paper, in children; rice, pieces of lead-pencil, matches, milk, oil, beer, pieces of cotton, straw, etc., in adults).

How shall the general practitioner conduct himself towards these objects? The patient, usually a child, has first undergone household treatment at the hands of relatives or a teacher, with hairpins, matches, etc., until the body is out of sight in the meatus. The unfortunate child is then taken, not to a specialist, but to the family doctor, who, if inexperienced, thinks it a simple matter to remove the offending object with forceps. The object is grasped, but slips from the instrument. The procedure is repeated more forcibly, with the same result. The child begins to cry, and upon further interference the ear bleeds. The doctor concludes that "the thing is deeper in" than he thought, and that he can do nothing further.

The terrified, loudly crying child is then brought to the ear doctor, resisting with hands and feet every attempt to approach it. We must now "keep cool" and not be betrayed by the excited condition of the child's companions into inconsiderate, hasty action. The child must be held firmly by some one, and especially the head firmly fixed. With very restless, uncontrollable children narcosis must be used.

We must then inform ourselves by means of the speculum and reflector whether the foreign body is really there, and in which ear. Children often in their frightened condition refer you, not to the affected ear, but the opposite one.

Having established the presence of the foreign body with the eye, it becomes necessary to inform ourselves by means of the probe as to the consistency of the same and the depth at which it lies. We then have the right to proceed at once to the removal. How shall this be accomplished? Never with forceps, especially for the commonest objects of hard consistency and smooth surface (stones, beads, buttons, etc.). It must be apparent to every thinking person that a hard or smooth body cannot be held firmly in the branches of the instrument, but, on the contrary, must slip from its arms, even when roughened or dentated, and be thus driven still deeper into the canal.

The sovereign instrument for almost all foreign bodies, especially those that have not been disturbed, is and always will be a common, easily working, not too small syringe (80 to 100 cubic centimeters). With this we will effect a good result in ninety-nine per cent of all the cases that have not been "examined" too much. The ear is retracted forcibly, the nozzle placed against the posterior wall of the meatus, and the fluid forcibly and steadily injected; the *vis a tergo* forces the body out. If the first injection does not succeed, repeat it six to twenty times. If the child is unmanageable, it must be at once anesthetized. Lukewarm boiled water should be used. Antiseptics are unnecessary. Water can be used with all objects that are not hygroscopic. For objects which swell in water we may use alcohol, or equal parts of alcohol with water or glycerin. This method usually succeeds in removing any object.

Having convinced ourselves by many repeated attempts that syringing is really ineffectual, we may then resort to instrumental removal.

Here narcosis is with children unconditionally necessary, and that of the deepest tolerance, otherwise reflex movements will certainly occur. Before resorting to any in-

strument we should first endeavor to remove the object with the syringe under narcosis, and will frequently succeed. Being convinced that this is really impossible, we introduce a small lever (probe), or better still, a slender spoon, along the part of the foreign body that allows it to pass best behind the object, and by a lever-like motion bring it to daylight.

But how shall we act toward meati which, in consequence of preceding attempts at extraction, display marked swelling and phlegmonous inflammation and discharge? Here especially we must not be led to unseemly haste by the pleadings of the relatives. If there is no fever and no general manifestations, we should rely upon syringing and dressing with antiseptic solutions, either liquor aluminii aceti (diluted from two to three times), or in severe purulent cases strips of gauze soaked in alcohol. Commonly we attain our end in moderate swelling and secretion by simple tamponade with dry gauze. Often enough it happens that the foreign body, loosened by the suppuration, comes out. In any case, decided general manifestations excepted, no kind of instrumental interference should be undertaken, when on account of swelling one can neither feel nor see the foreign body. The denuded bony meatus can be and has been mistaken for a foreign body. One should wait until upon reduction of the swelling a direct view of the object is obtainable.

When the patient already exhibits high fever and evidences of cerebral irritation, operative removal must be at once undergone at skilled hands (loosening the auricle and partial resection of the bony meatus).

We will only add further that living animal parasites can be washed out (flies, bugs) either before or after being killed with alcohol, or chloroform and ether vapor (maggots).

Related to foreign bodies in their removal are the extraordinarily common cerumen plugs. We should never proceed at once to remove such masses with instruments, but they should be softened by the instillation, several times daily for one or two days, of solution of potassa, or sodii bicarbonas with proportion of 1 to 30. On the third day the mass may be removed without difficulty. We should inform the patient that the deafness and roaring will be temporarily increased by the instillation. That cool or cold water should never be employed for syringing in this or any other ear affection goes without saying.

MUSCLE ATROPHY AS A CAUSE OF POST-OPERATIVE HERNIA.

ASSMY (*Centralblatt für Chirurgie*, No. 11, 1899) conducted a series of experiments upon animals with the idea of determining in what wise the danger of hernia after abdominal operations might be obviated. He carried many of his incisions to the right or the left of the median line through the main portion of the rectus muscle, afterwards closing this incision by buried sutures, bringing the various structures which had been divided in close contact with each other. A subsequent examination of these animals showed that there always resulted an atrophy of that portion of the muscle lying between the incision and the mid-line of the body, and that this atrophy corresponded exactly in its features with the wasting observed after division of the nerve supply. As corroborative of these facts the author also observed that after an operation practiced on the human through the rectus muscle, the portion of the muscle lying to the median side of the incision atrophied completely. Upon these facts the conclusion is drawn that the extra-median incision may be followed by hernia not only because the scar tissue virtually stretches, but also because from division of the terminal branches of the intercostal nerves which supply the rectus, this muscle atrophies and hence is unable to withstand the intra-abdominal pressure.

FORCIBLE REDUCTION OF THE DEFORMITY DUE TO POTT'S DISEASE.

GHILLINI (*Revue de Chirurgie*, Feb. 10, 1899) has operated on nine cases of Pott's disease and one of rickets for the purpose of correcting by direct force a spinal deformity. In three cases under observation for six months the straight position secured by the application of force has been maintained. In one of these the gibbosity formed an angle of 105°, and involved the bodies of seven vertebræ.

In a child eight years old, one month after correction of the deformity an abscess opened at the point of curvature. The spinous process and the lamina of the second dorsal vertebra were resected. Three months later the child was perfectly well. One case was followed by death, due to disseminated tuberculosis.

The only contraindication to this method recognized by the author is an old and very solid ankylosis.

THE OPERATIVE RELIEF OF BRAIN COMPRESSION FROM INTRACRANIAL HEMORRHAGE.

WARBASSE (*Brooklyn Medical Journal*, January, 1899) concludes an interesting report of two cases by the statement that when a patient has sunk into a state of unconsciousness from compression, a recovery from this state will not occur unless the compression is relieved. While inequality of the pupils is often present, it is not to be relied upon as a diagnostic sign. Sometimes the pupils remain absolutely even.

Wiesman noted that when there was marked dilatation of one pupil it occurred in twenty out of twenty-four cases on the side upon which the extravasation existed. A slight rise in temperature is nearly invariable, and the slowing of the pulse rate is one of the most characteristic symptoms of brain pressure. This is commonly associated with slowing of the respiration; and in the optic nerve are noted signs of venous obstruction.

The first case reported was that of a man fifty-three years old. When first seen he was in a condition of stupor. Neither the signs nor symptoms of fracture of the skull were present. After twenty-four hours, during which the stupid condition persisted, he developed pain in the right side of the head and back of the neck, of which he bitterly complained when aroused. On the third day his pulse-rate had gone down to 38 beats a minute, and there was partial paresis on the left side. The skull was opened in three places by the trephine, and on incising the dura a little bloody serum escaped. This operation was followed by prompt relief of headache, restoration of the pulse-rate to normal, and improvement in the mental condition. The drainage-tube, which had been introduced through the dural opening, was removed on the third day. The patient made an uncomplicated recovery.

The second case had received a blow on the head three days before he was seen. This was immediately followed by coma, persisting for an hour, and afterwards by stupor. The patient could be aroused sufficiently to walk when supported and to answer questions. His pupils were of equal size. Above and behind the left ear over the parieto-occipital region there was a soft hematoma beneath the scalp, but the skull beneath was not depressed. The temperature was normal, pulse 80, respiration 20. An incision into the soft hematoma revealed several lines of fracture about the center of the parietal bone. On going through the latter an extradural clot was found closely adherent to the dura. At the end of twenty-four hours the patient was restored to a normal mental condition.

THE TREATMENT OF CHRONIC SKIN DISEASES BY ELASTIC COMPRESSION.

SERENIN (*Centralblatt für Chirurgie*, Dec. 31, 1898) reports highly satisfactory results in the treatment of nævi, lupus, and various ulcerating lesions of the skin, by six weeks' treatment with elastic compression. The diseased surface was enclosed in the elastic bandage, which made only very moderate pressure. After from twelve to twenty-four hours the bandage was removed, washed, and after a thorough cleansing of the skin was again applied. Efficacy of the treatment was attributed to the slight pressure, warmth, moisture, rest, and protection afforded by the dressing.

TREATMENT OF FISSURE OF THE NIPPLE BY ORTHOFORM.

MAYGRIER (*Medical Press and Circular*, Jan. 25, 1899) having been dissatisfied with the great variety of treatment proposed for fissure of the nipple, and particularly with the failure of all drugs, excepting cocaine, to control the at times very severe pain, employed orthoform in the hope that its distinctly analgesic action might be serviceable. This drug, a crystalline yellowish powder, insipid and inodorous, scarcely soluble in water, extremely so in alcohol and ether, is practically non-toxic. Orthoform was originally introduced as an antiseptic. Subsequent investigations showed that it possessed this power in but a feeble degree.

It is worthy of note that under its contact the deepest burns become almost painless. It has been used with success in tuberculous ulceration of the pharynx, for the relief of the burning pains of open wounds, and for the alleviation of the very intense suffering of herpes zoster. Its action is much more lasting than is that of cocaine, being counted by hours and averaging perhaps half a day. The dermis must, however, be exposed, so that the powder can be brought into direct contact with the nerve terminals. Its essential indication is, therefore, the existence of a raw surface. When this condition is present there is absolute suppression of sensibility.

Maygrier has employed this drug in forty

cases of fissure of the nipples. Without exception the relief was almost instantaneous. He employed it as a direct application to the fissure, the dressing being completed with a compress moistened in a solution of boric acid and covered with a piece of oiled silk; or as a dry application, the gauze being applied over the powder in the dry state; or as a saturated alcoholic solution, drops of the latter being applied on the fissure, after which a dry compress completed the dressing. There was always a slight burning sensation for a few moments, but the operation of nursing was rendered almost painless, especially when the alcoholic dressing was used.

The drug, in addition to its analgesic effect, has a distinctly cicatrizing influence, the fissures healing more rapidly under this than under any other dressing. The average time of cure without stopping nursing was four days.

TREATMENT OF CHANCROID BY RADIANT HEAT.

KROESING (*Centralblatt für Chirurgie*, Jan. 7, 1899) hails Audrey's method of treating chancroid as a distinct improvement over both the carbolic acid and iodoform methods, and over that so warmly advocated by Welander—*i.e.*, the application of heat by means of tubing through which hot water circulates. Audrey's method was practiced by Kroesing, except that in place of the Paquelin he used the galvanocautery. The red-hot point was held, at the most, four millimeters from the ulcer, especial attention being devoted to the borders of the latter. The treatment lasted ten to fifteen seconds, but was not carried to the point of producing blisters. The pain was stated to be bearable. There followed the application a serous infiltration of the ulcer. Edema, which is always moderate, quickly disappeared. Usually but one application was required to make the surface of the ulceration perfectly clean, and where there had been lymphadenitis this disappeared promptly.

POSTOPERATIVE DELIRIUM.

PICQUÉ (abstracted in the *Centralblatt für Chirurgie*, Jan. 7, 1899) classes under this title all intellectual disturbances following operation; though it must be remembered that many such disturbances are not in the least to be considered as having been caused by operation. Thus certain diseases or conditions from which the patient was before suffering may be responsible; as, for instance, renal insufficiency, or chronic alcoholism. Or delirium may be due to drug intoxication, as is so frequently noticed after the use of iodoform, or it may be due to septic infection. Picqué classes such nerve disturbances as pseudo-deliriums, limiting the term "post-operative psychoses" to those mental disturbances which are apparently dependent upon the operation itself.

These psychoses can be caused by every kind of operation, and are not more frequent after gynecological interference than after other forms of operation. Picqué states that these psychoses are most frequent in children, old men, and hysterical people. There is first a period of excitation commonly observed from the second to the fifth day; rarely does it develop after a week. It usually disappears as quickly as it came. Exceptionally it passes into a chronic condition, and is accompanied by depression and melancholia, particularly after operations which are more or less mutilating. These chronic cases often give a history of heredity.

SERUM-THERAPY IN SYPHILIS.

NEISSER (*Centralblatt für Chirurgie*, Jan. 7, 1898) has contributed to the *Archiv für Dermatologie und Syphilis* a careful study of the question of the serum treatment of syphilis. The first portion of the paper is devoted to a consideration of immunity upon the common conception of which the whole theory of the serum-therapy is necessarily based.

Although Neisser believes in the immunity which follows the first attack of the disease, he holds that it is not so certain and invariable as to be accepted without further study and corroboration.

The various methods by which experimenters have endeavored to demonstrate the efficacy of an antisyphilitic serum are all discussed and are condemned.

In twenty-eight cases he injected serum, mostly derived from patients in the late period of the disease. These injections were made before the development of general symptoms—often intravenously and often in large quantity. In not one instance was there a positive cure. He also attempted to discover a preventive treatment, hoping that the injection of serum from patients in the early or the late stages of syphilis might protect from the disease the individual into whom these injections were made. In four

such patients syphilis subsequently developed. Neisser ends his article with a strong plea for mercurial treatment.

THE TREATMENT OF PELVIC PERITONITIS.

STRATZ (*Centralblatt für Gynäkologie*, No. 6, 1899) notes that in twenty patients upon whom he performed laparotomy for the cure of inflammation of the adnexa, he lost but one, who before operation had developed a generalized peritonitis; but that only fifty per cent of those who recovered from the surgical operation were made well. The remainder suffered from invalidism for years, in some cases from recurrence. Thus he was led to practice more conservative measures.

In acute cases he applies to the entire abdomen large compresses impregnated with equal parts of ichthyol and lanolin; he also orders rest in bed, baths, and hot vaginal irrigations, at a temperature of from 45° to 50° C. One-half gallon of fluid is used at each irrigation, and the treatment is repeated twice daily. He has devised a speculum which protects the external hypersensitive parts from the hot solution. As a result of these irrigations the temperature usually dropped to normal in from four to eight days, the tenderness disappearing at the same time.

TUBERCULOSIS OF THE MAMMARY GLAND.

HALSTEAD and LE COUNT (*American Journal of Obstetrics and Diseases of Women and Children*, February, 1899) state that in the beginning mammary tuberculosis may not present any recognizable symptoms. As the disease progresses the symptoms vary according to the form the tubercular lesion assumes.

In the disseminated nodular or discrete type of the disease the nodules may he either single or multiple. The breast generally preserves its normal size and appearance. In only a few cases is the volume appreciably augmented or its contour changed. The skin covering the gland is normal in appearance, not adherent to the intraglandular mass, and without fistulæ opening on its surface. On palpation we find one or more nodules, which are movable, hard, and only slightly painful on pressure. Their outline is, as a rule, distinct, though at times they may be ill-defined and apparently merge into the surrounding normal gland tissue. These slowly increase in size, soften, and undergo caseous degeneration or suppuration, and in the end form fistulæ, from which is discharged tubercular pus. The nodules may, before fistulæ are established, so enlarge that one or more may coalesce, forming tumors of considerable size, which ultimately terminate by discharging their contents through fistulous openings.

In cases where there are a number of nodules they are usually distributed throughout the gland. When a single nodule is present it is nearly always formed in the upper and outer quadrant of the organ.

The most characteristic features of the disseminated nodular form of this disease are the extreme chronicity of the process and its painless and insidious development. In many cases the nodules remain stationary for years without causing any subjective symptoms that lead the patient to seek medical advice. In the end, however, nearly all become slightly painful, gradually enlarge, and undergo the degenerative changes common to all forms of tubercular disease. When softening has taken place, before the cavities coalesce, fluctuation may be detected. In most cases, however, the cavities are so small that it is impossible to elicit this sign.

The confluent form of the mammary gland tuberculosis is characterized by a more acute onset, greater pain, and rapid enlargement of the breast. On palpation we find a tumor, usually single, varying in size from that of a walnut to an orange, of irregular outline, nodular and fluctuating. The gland is generally uniformly enlarged. The tumor, if single, is usually found in the outer half. This type of the disease is more common than the disseminated nodular form. In many cases fistulæ form early, and it is in this condition that the surgeon frequently first sees the patient.

In about seventy-five per cent of the cases reported there was a tuberculous adenopathy affecting the axillary glands on the same side as the breast lesion. The disease in the axillary glands, even when secondary, usually advances more rapidly than that in the breast. In some cases the lesion in the axilla is joined with the breast lesion by a band of indurated tissue which can be distinctly palpated. When this is present it is regarded as a characteristic sign of mammary tuberculosis.

As in other forms of tuberculosis, softening and suppuration with the formation of fistulæ is the natural and frequent termination of all types of mammary tuberculosis. Spontane-

ous healing of tubercular foci in the gland before suppuration takes place seldom, if ever, occurs.

In the first of these, the disseminated tuberculosis of the mammary gland, there is very little or no increase in the size of the organ and the skin is unbroken by fistulæ. On section distinct, firm nodules are found, which vary in size from a pin-head to an almond. Their yellowish or wax-colored centers are surrounded by a zone of grayish or bluish-gray slightly translucent tissue, and the separate foci are isolated by healthy gland tissue. The gland tissue immediately adjacent to the alien areas is firmer than normal. Various areas show a diversity in the character of the central portions, some more gray, some more yellowish, and some may be calcified.

In the confluent form the gland is commonly enlarged even to double its usual size, but the enlargement is seldom symmetrical; for example, the external half can be much more increased in size than the remainder of the gland. On section through that part which is judged to be most changed, it is found to be made up of cavities, irregularly spherical and flattened, with multiple diverticulæ. Some that are apparently separate and independent are found, on closer examination, to be connected by minute sinuses, with neighboring cavities. The walls of these cavities are roughened by small cup-like depressions separated by ridges, giving to the whole an areolar appearance. The lining of these cavities is a soft, grayish membrane, one to two millimeters thick, with here and there yellowish points. Externally it sends fibrous prolongations into the adjacent tissue. The gland tissue surrounding the cavities is of increased firmness for a distance of from two to three centimeters, grayish, pale, and fibrous. In this are small, pinhead-sized, grayish, or finely transparent areas projecting slightly above the cut surface. These minute foci are more numerous in the tissue surrounding than in the wall itself. The larger cavities communicate by fistulæ with the exterior, and these channels possess lining membranes similar to those of the cavities. Ordinarily only one breast is affected and the axillary glands are involved.

In the early stages of the discrete or disseminated nodular form of primary mammary tuberculosis, especially in those where no axillary adenopathy is present, a positive diagnosis can never be made without a microscopic examination of the tumor. The conditions most likely to be confounded with tuberculosis of the breast are adenofibroma, sarcoma, simple cysts, carcinoma, and gumma.

In disseminated nodular or confluent tuberculosis of the mammary gland, early removal of the breast and axillary gland on the same side offers the greatest hope for a speedy and permanent cure. Nothing short of this can assure an eradication of the disease. In all cases of primary mammary tuberculosis the prognosis, after such an operation, is excellent. In secondary tuberculosis the prognosis, of course, depends upon the seat and extent of the primary lesion.

In the discrete nodular form, where the disease is limited to one focus of inflammation, the remaining portion of the gland appearing normal, the removal of the nodule together with the gland tissue immediately surrounding it will be sufficient, providing the patient can be kept under observation for some time after the operation. In those rare cases of cold abscess of the breast not associated with tuberculosis of the axillary glands, or in those in which a radical operation is contraindicated, aspiration of the abscess and injection of iodoform emulsion may be employed.

THE TREATMENT OF EPILEPSY, EXOPHTHALMIC GOITRE, AND GLAUCOMA BY RESECTION OF THE CERVICAL SYMPATHETIC.

JONNESCO (*Centralblatt für Chirurgie*, No. 6, 1899) contributed an article in 1897 upon complete bilateral resection of the cervical sympathetic nerves as a rational treatment for exophthalmic goitre and epilepsy; since which time he has practiced the operation in fifty-four cases. In September of 1897 he limited this resection to the superior cervical sympathetic ganglion in a case of glaucoma, and has repeated this operation seven times. Since August, 1896, he has operated upon forty-three cases of essential epilepsy, one of epilepsy and chorea, one of epilepsy and exophthalmic goitre, eight of exophthalmic goitre, one of goitre and glaucoma, and seven of glaucoma. Of these sixty-one operations, forty-two were complete bilateral resections of the three ganglia and their intermediary connecting nerves. In the remaining operations the procedure was somewhat modified.

As a result of operation on ten cases of exophthalmic goitre, six were cured and four were improved. At least two of these cured cases have been under observation for up-

wards of two years. They were all instances of true primary exophthalmic goitre.

The first result of the operation is the rapid disappearance of the exophthalmus, an improvement in the general condition and of the nervous symptoms. The last thing to disappear is the goitre. This may not lessen in size for months or even a year. Of six acute cases four underwent double resection, the other two resection of the upper two ganglia. Improvement was noted in one case of Basedow's disease, in which a unilateral resection was made. In the three improved cases the disease was secondary.

The author holds that resection of the sympathetic is especially indicated in the primary forms of Basedow's disease, and warns operators against expecting too early a marked result.

Of the forty-five cases of epilepsy operated upon, forty-two were subjected to complete bilateral resection. Six died shortly after operation; but nineteen have been observed for a sufficient length of time to enable just conclusions to be drawn therefrom. Ten are reported as cured, and five of these have been under observation for upwards of two years. Six are improved; two are not improved.

As to the glaucoma cases, the improvement was rapid and surprising.

The evil consequences of this operation are, according to Jonnesco, absolutely lacking.

It is interesting to note in this relation Chipault's communication in the *Gazette des Hôpitaux* for April, 1898. Of his seventy-one operations, forty-one of which he previously published, with forty collected from general literature, there were no deaths. He noted that to be successful it was absolutely essential that both superior ganglia should be removed. The cases in which the cord was resected below the ganglia, or in which the middle ganglia were removed, were unsuccessful. Chipault quotes Jonnesco to the effect that nine out of fifteen cases were cured and four benefited. Chipault's most recent recoveries were first of a child two and a half year's old who had suffered from fits for about twenty-two months (he had them every few minutes), and who had been subjected to futile craniectomy. The right upper cervical ganglia was removed, and in a month the patient was well. The second case was also cured, at least for the one month during which it had been under observation.

THE CURE OF CERVICAL ADENITIS WITHOUT CICATRICES.

Under this title CALOT (*Revue de Chirurgie*, No. 11 Supplement) describes a method which he states will be successful in ninety-nine out of one hundred cases. Adenitis in itself he considers of minor import. The most serious aspect it presents is that connected with the customary scarring incident to operation, which as a rule is practiced on those cases which do not undergo spontaneous resolution. The most unfavorable cases are those which neither become absorbed nor break down and soften.

Resolution is favored by general hygiene and an antiseptic treatment of all the regions drained by the lymphatics running to the infected ganglia; also by sea air. When, after prolonged residence at the seaside, the glands neither soften nor disappear by absorption, Calot injects into them thirty to forty drops of a two-per-cent solution of zinc chloride. This is repeated three or four times every second day, and almost certainly causes softening. When this is accomplished, and at once, when cases present themselves in which the gland is broken down and softened or in which the skin is not yet affected, Calot drives a fine hypodermic needle into the softened material, withdraws a part of it, and injects camphorated naphthol. Thus he always avoids the open operation except in such cases as exhibit an ulcerated, undermined, devitalized skin covering.

THERAPEUTIC INDICATIONS FOR SECTION OF THE CERVICAL SYMPATHETIC NERVE.

ABADIE (*Revue de Chirurgie*, No. 11 Supplement) instances as types of maladies caused by the alterations of nutrition due to permanent excitation of the vasodilator nerves, glaucoma and exophthalmic goitre, both of which, he states, are cured by section of the cervical sympathetic nerve. Other maladies, he considers, could be with advantage subjected to the same treatment, such for instance as the morbid phenomena incident to excitation of the vasodilator of the thoracic abdominal organs. A common characteristic of such maladies is dilatation of the pupil. In this relation, it is interesting to note, Témon reports a bilateral resection of the cervical ganglia for the relief of exophthalmic goitre. The middle and lower ganglia were resected, and for eight days the symptoms were distinctly better, but after

two weeks the condition of the patient was worse than before operation. Two other cases of this nature were treated by partial thyroidectomy. The results in each were entirely satisfactory.

A FATAL CASE OF TETANUS IN THE NEW-BORN TREATED BY SERUM.

MEERKOWSKI (*La Presse Médicale*, Jan. 14, 1899) reports the case of a child seven days old suddenly taken with rigidity of the jaw, followed by complete opisthotonos and rigidity of the extremities, with paroxysms about every fifteen minutes. The umbilicus was suppurating. Microscopic search and inoculation failed to demonstrate the presence of the tetanus bacillus. Ten centimeters of antitetanic serum, obtained from the Pasteur Institute, was injected twelve hours after the first development of the disease. No amelioration followed the injection, and the child died the following day. The cord lesions were similar to those observed in tetanus.

INTRAMEDIASTINAL ESOPHAGOTOMY PRACTICING THE REMOVAL OF FOREIGN BODIES.

FARGUE (*Revue de Thérapeutique Médico-Chirurgical*, Nov. 15, 1898) had brought to him a child who three months before had swallowed a sou. The child had wasted much, suffered from pain in the chest, had attacks of suffocating, spasmodic cough, accompanied by expectoration of mucopurulent, blood-stained sputa. Bronchia was especially marked on the left side, and there was vomiting. The symptoms suggested that the sou was fixed and had ulcerated partly through the esophagus. The radiograph showed the coin fixed in the fourth intercostal space to the right of the shadow cast by the vertebral column. It was because of this radiograph that Fargue practiced, contrary to the accepted views of the subject, a right instead of a left posterior thoracotomy. A six-inch vertical incision was made over the angle of the ribs, between the middle line in the general border of the scapula. The sixth, fifth, and fourth ribs were denuded for about two inches of their length and were resected. The third intercostal was clamped. The thorax was opened to an extent sufficient to allow the introduction of the fingers, which were employed to strip the parietal pleura. The edge of the sou was distinctly felt, but it was only by the very tips of the fingers and at a depth of about three inches; moreover, there was sufficient hemorrhage to entirely obscure the operative field. The effort to strip the parietal pleura by following its mediastinal reflection and thus separating it from the right border of the esophagus was unsuccessful. The cellulo-fatty tissue lying directly in front of the vertebral bodies and behind the esophagus was entered, and hence the esophagus was carried forward out of reach. It was impossible to find the interspace between the esophagus and the pleura, and the coin could no longer be felt. The mediastinum was tamponed, the wound was drained, and the upper part was sutured.

Twelve days later the coin was extracted by an instrument introduced from the mouth in the ordinary manner.

ANTISEPTIC LIGATURES.

HAEGLER (*Centralblatt für Chirurgie*, No. 5, 1899) urges the importance of incorporating with ligatures some antiseptic substance which will prevent the development of late abscesses due to infection of the ligatures. He states that he has observed many such abscesses; that some of them did not become manifest for four or five weeks after complete primary healing; that the thin purulent secretion from these abscesses was often sterile both by microscopical examination and by bacteriological test; but that the ligature which should be regarded as their causative agent, if examined would be found to be swarming with microorganisms.

He noted that if a sterile ligature were drawn through the finger of the operating surgeon it would always be found to be, after this process, thoroughly infected with germs. Therefore, as a means of preventing the germs in or upon the surface of the surgeon's skin from subsequently forming the nidus of a necrotic area, Haegler has his ligatures so prepared that they contain an active antiseptic, strong enough either to destroy the germs or to inhibit their growth. Since the use of this antiseptic ligature, he states that not a single instance of ligature abscess has developed in his clinic.

The antiseptic used is sublimate, the ligature silk. The silk deprived of its fat is impregnated with the mercuric salt, either by boiling for a short time or allowing it to soak for several days in a strong sublimate solution. As a result of this the silk fiber seems to draw to itself the mercury, so that neither washing in water nor in alcohol will remove it.

TREATMENT OF HYPERTROPHY OF THE PROSTATE BY ELECTRO-INCISIONS.

LEWIS (*Medical Review*, No. 6, 1899) reports two cases operated on by the electrocauterizer as modified from Bottini's instrument by Freudenberg. The first case, seventy-four years old, gave a prostatic history of about ten years' duration. This patient had from four to six ounces of residual urine and was compelled to rise thirteen times in the night. Operation was performed in the office. There was little pain, no hemorrhage, no general reaction. Three weeks after the residual urine was reduced to three ounces. A second operation was performed, but so recently that it is too early to note improvement. In this case the bladder was injected with air instead of water.

The second case, forty-seven years old, gave a prostatic history of about nine years. He was anemic, exhibited a large bubo in the groin, and was almost entirely unable to micturate voluntarily. The prostate was the size of an apple. There was no improvement for seven days after operation—then but a slight and intermittent one. The procedure was repeated about two and a half weeks later. The reporter states that since then the patient has been unable to empty his bladder.

TREATMENT OF BURNS BY POTASSIUM CHLORIDE.

LARGER (*Revue de Chirurgie*, No. 11 Supplement, 1898) employs a saturated solution of potassium chloride as soon as the patient comes under his charge. He states that this lotion is efficacious in all burns, whatever their depth, and that it is especially serviceable in those that are suppurating. The pain, he states, disappears almost immediately. During the whole course of the superficial burn, the dressing consists of compresses wrung out in this solution of potassium chloride, covered in after one or two days with waxed paper. The application is feebly antiseptic, and is not absorbed in sufficient quantity to produce systemic poisoning.

HERNIA OF THE APPENDIX.

JAJA (*Revue de Chirurgie*, Feb. 10, 1899) has found in 1586 cases of radical operation for hernia practiced by Professor Colzi, twenty-seven cases of hernia of the appendix; twenty-one were uncomplicated, six were strangulated. Usually the appendices showed the evidences of chronic inflammation. The bacteria found were almost without exception colon bacteria of moderate virulence.

Strangulation of the appendix causes the same symptoms as strangulation of a portion of the lumen of the intestines. When the appendix contains solid bodies strangulation is of much more serious import, since it is likely to be accompanied by precocious ulceration or necrosis, with subsequent infection of the general peritoneal cavity. An extremely virulent form of the bacterium coli may be found in the hernial sac. From these facts it follows that an excision of the appendix should be performed whenever it is found in a hernial sac, during the course of a radical cure for hernia.

THE BEARD AS A CARRIER OF INFECTION DURING ASEPTIC OPERATIONS.

HUEBENER (*Centralblatt f. Chirurgie*, No. 11, 1899), who has shown by experimental research that a wire muzzle covered with a double layer of gauze will entirely prevent the infection which is otherwise projected into a wound by talking on the part of the operating surgeon or his assistant during operation, is evidently much concerned by Garré's remark that the friction of this muzzle upon the beard of a hirsute surgeon will necessarily release a great number of bacteria and scatter them over the operative field, thus increasing rather than lessening the danger of infection. For the purpose of deciding this important question, he instituted a series of experiments which proved that although the mask did not increase the number of germs which dropped from the beard, this number was in any event sufficient to seriously jeopardize the simple healing of a wound. Although it is true that the bacteria thus disseminated are often non-pathogenic, Huebener found as a result of an examination of twenty-six of his bearded colleagues that eleven were prolific of pyogenic cocci.

To prevent danger from this source Garré has advised that before operation the beard should be bathed in sublimate solution. Bardenheyer, fearing lest the action of the sublimate should be but temporary, has devised a linen bag into which the beard is thrust. Vulpius, still more radical in his methods, draws over the entire head and neck a gauze bag, the only apertures in which are those for the eyes. A band about the forehead and about the neck keeps this bag in place

Huebener as a modification of these latter methods has had attached to his muzzle an added sheet of gauze, which by means of tapes attached to its ends can so enclose and tie back the beard that the danger of infection from this source is entirely obviated.

There are appended to this article two illustrations, showing that this mask is not only scientifically of service, but is also distinctly cosmetic in its effect. Moreover, it is stated that Mikulicz wears it without the least inconvenience, and the bacteriological tests show that it is quite efficient. In the illustrations it is noteworthy that there is no covering for the hair; nor has the danger of infection from this source apparently occurred to the distinguished inventor of the surgeon's mouth, nose, and beard muzzle.

LAPAROTOMY FOR TUBERCULOUS PERITONITIS IN A CHILD OF THREE YEARS.

SENGENSSE (*Annales de la Policlinique de Bordeaux*, March, 1899) contributes the history of a case of tuberculous peritonitis which is interesting because of the tender age of the subject, and of the apparently radical cure accomplished in spite of the extremely enfeebled condition and the multiple and serious manifestations of tuberculosis which were developed after operation. Tuberculous peritonitis is rare before the third year. This is true of the ascitic form of the affection, which, moreover, is the form most likely to undergo spontaneous resolution.

The child began to lose flesh at the beginning of its third year, and at the same time suffered from diarrhea and distention of the stomach. Upon the surface of the latter were seen large veins. There was evidence of fluid accumulation, and indurated nodules could be felt on palpation. There were scars of former abscesses in the groins and an abscess in the right malar region, which was punctured and injected with iodoform in ether.

The abdomen was first punctured and the fluid was drained off. After this first puncture and evacuation of the fluid, the reaccumulation was rapid; therefore laparotomy was performed, showing tuberculous granulation covering the peritoneal surface. A little powdered iodoform was dusted into the abdominal cavity, which was then closed. There was slight reaccumulation of fluid, followed by absorption and disappearance of the indurated nodules. Later there developed a tuberculous abscess in the leg and one in the arm.

The child three years later is reported as absolutely cured. The abdomen is perfectly soft and shows no trace of either effusion or nodulation.

A TUBERCULOUS LUNG ABSCESS DRAINED.

SALOMONI (*Revue de Chirurgie*, Feb. 10, 1899) holds that intervention in cases of wound of the lung is limited to aspiration of a hemathorax. He operated on two cases of gangrenous abscess, the first of which recovered; the second died from extension of the pathological process to the pleura and then to the other lung. Three cases of tuberculosis were subject to operation. One was completely cured, but died four years later of peritoneal tuberculosis. Another also recovered, but died two years later of generalized tuberculosis. The third case was operated upon in 1896. He was twenty-two years old and fell ill of an acute form of pulmonitis. A suppurating cavity developed which opened by three fistulæ. In the discharge were found Koch's bacilli. The general condition of the patient was extremely bad.

A large flap was formed with the base above, and the ribs, from the sixth to the eleventh, were resected. The pleural pouch was opened by the galvanocaustic knife. This instrument was then carried into two pulmonary cavities, lying above the purulent pleural collection. These cavities were cleansed and packed with iodoform gauze. The upper portion of the cutaneous wound was sutured and the remainder was tamponed.

Nearly two years later the patient suffered from a fistula, and there were symptoms of a tuberculous osteomyelitis of the tibia.

The total number of published pneumotomies for the cure of tuberculosis is thirty-eight; twenty were cured, eight died. From this the author concludes that the operation of pneumotomy is of incontestable utility in the treatment of pulmonary tuberculosis, when this disease occasions unilateral moderately sized cavities.

COMPLETE EXTIRPATION OF THE BLADDER.

TURETTA (*Revue de Chirurgie*, Feb. 10, 1899) states that this operation has been practiced nine times, and of the three men upon whom it was carried out not a single one survived. In his own case the operation

was necessitated by a malignant tumor, which was confined entirely to the vesical walls. The patient was thirty-three years old, and there was no tumefaction of the neighboring lymphatics. There was also excellent physical condition. The temporary resection of the pubic bone was performed, the urethra was cut across, and the bladder was opened from below upward; a small patch of the peritoneum being resected, and the peritoneal cavity then being immediately closed by suture. A uterorectal anastomosis was then performed by means of the ingenious button advised by Boari. On the third day there was an escape of urine through the wound. Sixteen days later the patient died of nephritis.

A SUCCESSFUL TREATMENT OF INTRACAPSULAR FRACTURE OF THE NECK OF THE FEMUR.

GROSS (*Münchener Medicinische Wochenschrift*, March, 1899) had brought to him a patient sixty-four years old, suffering from a left-sided intracapsular fracture of the neck of the femur, which occasioned about an inch and a half shortening. By means of compound pulleys this deformity was entirely overcome, and the entire extremity, together with the pelvis, was enveloped in plaster-of-Paris bandages. As soon as these had become hardened, the patient was allowed to be out of bed. On removal of this dressing the fracture was found to be consolidated and without the slightest shortening.

EMPYEMA OF THE FRONTAL SINUSES AND INTRACRANIAL INFECTION.

GIBSON (*American Journal of the Medical Sciences*, March, 1899) believes that a statement of the features of a case of empyema of the frontal sinuses reported in full by him would be correctly expressed by the following:

First, nasal trouble, starting up a left frontal sinusitis; with persistence of the trouble, beginning caries of the cerebral wall on that side. At a probably much later period infection of the right frontal sinus, either from the left side, but more probably from the nose, or from both. On this side the cerebral wall was the site of a structural defect, so that there was no bony partition between the cavities of the sinus and the skull, and infection of the cerebral covering necessarily resulted.

The autopsy showed that the writer was justified in having relied on a single external opening over one of the sinuses, supplemented by nasal drainage, properly to remove the secretions, as both sinuses were found to be completely free of pus. The failure, however, to make an opening so situated that every part of the sinus could be explored, Gibson now believes to have been a mistake. Certainly, one external opening, unless situated in the median line and of a sufficient extent, fails to give proper facilities for exploration, and this step, in the light of the experience quoted, is absolutely necessary for carrying out an efficient line of treatment.

Tilley recommends a median incision even when only one sinus is affected. He makes an incision from about the root of the nose below, continued upward in the median line for one and a half to two inches; then, having raised the periosteum from the bone over the position of the sinus, the former, with the other soft parts, is drawn to one side, thus fully exposing the bone, which may be removed by gouge and mallet or trephine. The latter is applied to the nasal portion of the frontal bone, between the vertical median line and a line drawn vertically upward from the internal angular process; it will in all cases open the sinus on that side, if one exists. A very manifest advantage of the median vertical incision is that the scar is in the median line, and, being in the direction of natural skin, cleavage is scarcely noticeable a few weeks after operation. By locating the exterior opening as near as possible to the nose, it seems to facilitate access to the infundibulum.

If, on examination, the nose is found to be eroded or perforated, it should be carefully scraped or gnawed away to the extent found necessary. If an extradural abscess is found, it should be explored and any pockets broken up and outlying recesses drained. Whether the dura is to be opened for the purpose of exploration should be judged by the appearance of the process, the intensity and duration of the symptoms. Should the underlying cerebral substance present any apparent changes from its normal consistency, opening of the dura or puncture with the exploring needle, or both, will probably be in order; and if intracerebral suppuration is discovered it must be treated on general principles. The possibility of a complicating cerebral hernia should be forestalled, if possible, by suitable packing.

Irrigation, unless the absence of bony perforation is absolutely demonstrated, should never be employed; by the consideration of the case reported it was apparently the direct

cause of death, setting up an increased tension in the old focus, with rapid spread of the infectious agents. It would seem likewise unwise, if a communication with the interior of the skull has been found, to establish a communication downward into the nose; for a communication between the two cavities should be rigidly avoided. Should the patient eventually recover, and the channel into the skull become firmly obliterated, drainage downward might be instituted at a later period, if the external sinus failed to close. Likewise, after a long continuance of a fistulous tract, its excision and closure by a plastic operation might be possible after establishing nasal drainage.

MOVABLE KIDNEY IN CHILDREN.

COMBY (*American Journal of the Medical Sciences*, March, 1899; quoted from *Pediatrics*) reported to the British Medical Association, at its meeting in July last, that he had encountered eighteen cases of this condition in children in the course of the past several years—so relatively high a number that he is convinced that the condition is high at all ages. Of the eighteen cases, two were aged respectively one month and three months; six were between one and ten years; and ten were above ten years of age. These figures, however, corresponded only to the dates of examination and diagnosis, so that the mobility doubtless dated back further than this. Sixteen of the cases were girls, two were boys—the same proportion of the condition in the female sex observed in adult life. In fourteen of the cases the mobility was associated with dyspepsia and dilatation of the stomach; hereditary syphilis was obvious in two cases; chlorosis in two; lienteric diarrhea in one; migraine in one; and psoriasis in one. In nearly every case the affection was latent; in two it had been mistaken for a chronic appendicitis; twice it had been recognized and treated.

As regards the cause, it was impossible to attribute it to pressure of the corset, as the greater number of the patients wore neither corset nor belt. Nearly all were dyspeptic, having gastric trouble or pains in the stomach, suffering perhaps as a result of gastro-intestinal distention, to which ill-nourished children are subject. But in the two cases of hereditary syphilis, in whom the floating kidney was discovered post mortem, none of the above causes could have been operative, and the affection must here be considered as congenital. Litten, Gutterbock, Ewald, and Albarran believe all cases to be of congenital origin, with which opinion the author seems inclined to agree, at least to the extent of supposing the kidney to be provided with too long a pedicle, which causes it to float in the abdomen either spontaneously or as the result of pressure or injury. The greater liability of females than males to this displacement must have some connection with the abdominal conformation of the former.

The symptoms are very variable, and do not afford a satisfactory guide to diagnosis; often the affection is absolutely latent. Pain, at times paroxysmal, is sometimes present, and may come on after some unusual fatigue or effort. In these somewhat rare cases the kidney may become twisted and the ureter occluded, causing hydronephrosis, which may be transitory, intermittent, or persistent. Coprostasis, appendicitis, different cystic or solid tumors of the kidney, perinephritis, and stone are among the conditions to be excluded. Palpation usually reveals the presence of a smooth, rounded, movable mass.

When the affection is latent or well borne, when the pains are moderate or intermittent in character, rest and an abdominal belt may suffice to relieve. Bandaging rarely succeeds. Dyspepsia and constipation, which are so often present, should not be neglected. Should the pains persist or become unbearable, or attacks of peritonitis or hydronephrosis occur, the operation of nephrorrhaphy should at once be made.

A STUDY OF SIXTY-SEVEN CASES OF PRIMARY MALIGNANT TUMORS OF THE SUPRARENAL GLAND.

RAMSAY (*Bulletin of the Johns Hopkins Hospital*, January, February, March, 1899), in summarizing a study of sixty-seven cases of primary malignant tumors of the suprarenal gland, finds the following facts to be true: (1) That while malignant tumors of the suprarenal gland are rare, they should be considered as one of the factors to be eliminated in the presence of an abdominal tumor; (2) that they are somewhat more common in the male sex; (3) that while in a certain proportion the symptoms are fairly well marked, there are many in which no symptom points to the suprarenal origin; (4) that rapid loss of strength, debility, emaciation, digestive disturbances, and abdominal pain are the most prominent symptoms; (5) that skin changes are rather the exception than

the rule; (6) that they run a rapid course, the duration being shorter than usual with a neoplasm in other organs; (7) that the diagnosis is impossible in many, and difficult in all, cases; (8) that a differential diagnosis must be made from other suprarenal diseases, from renal tumors, from hepatic tumors, from diseased retroperitoneal glands, and from cysts and new growths of the pancreas; (9) that the prognosis is always serious, even following a successful operation, from the great frequency with which both glands are found involved, and the tendency to early metastases; (10) that operation gives the only hope of relief, and that it has been successful in two cases; (11) that the principal difficulties in the operation are the friability of the tumor, the great tendency to hemorrhage, and the frequency of adhesions.

THE DISSECTION AND LIBERATION OF THE SPHINCTER ANI MUSCLE, FOLLOWED BY ITS DIRECT SUTURE IN CASES OF COMPLETE TEAR OF THE PERINEUM; WITH A SPLINTING SUTURE PASSING BETWEEN THE OUTER AND INNER MARGIN OF THE MUSCLE.

KELLY (*Bulletin of Johns Hopkins Hospital*, January, February, March, 1899) states that the prevailing operation in this country is the Emmet, which need not be described in detail, as it is so well known. The operations practiced in Europe for the most part are of a similar nature, or flap-splitting, or Hegar's method. The important principle in the Emmet procedure consists in the application of a series of sutures to an area thoroughly denuded, first closing the bowel, then radiating out from the bowel, over the skin and on to the vaginal surfaces. Emmet further lays great stress upon a tension suture entering and emerging at points outside of and well behind the external sphincter ends and traversing the septum, for the purpose of supporting and keeping all the fibers of the sphincter ends together. Dr. Emmet told the author on one occasion that the devising of this suture cost him more thought than almost anything he had done in gynecology.

Although this operation, as well as the other mentioned, when well carried out, succeeds admirably in many instances, it still leaves much to be desired in that there does remain a residuum of failures, and a considerably larger percentage of cases in which the function is so imperfect at first that we are obliged to wait weeks or months for the patient to gain a satisfactory control; and sometimes in this latter group there are women who will tell you that when their bowels become loose they always find their clothes more or less soiled, while they are also apt to be uncertain about the control of gases.

In order to meet the various objections to the operation as practiced at present, Kelly has devised several procedures. The first important point is the dissection and liberation of both ends of the sphincter muscle, after which they are sutured together with buried catgut sutures, end against end.

The author states that the first point of difference between his own method of treating the sphincter and those of previous operators is a carefully conducted denudation, giving the sphincter a wider berth, so as to separate it from the skin surface, after all the parts have been brought into apposition, by a greater interval. This is done to make the burial of the catgut sutures a safer procedure.

The next important thing is the dissection and liberation of the sphincter ends until one or one and a half centimeters or even more is pulled out free on each side. This has not been proposed before. The ends are then cut off so as to remove the scar tissue, and three interrupted catgut sutures passed through them so as to be ready to bring them snugly together at the proper time.

The rectal wound is then completely closed by a series of interrupted sutures passed close together, so as to make it impossible for any minute particles of fecal matter to press between the stitches and cause an infection. This closure is carried down and over the anus onto the skin area, and then only, after this step is satisfactorily completed, are the sphincter ends brought together and the buried catgut stitches tied. Another important point, which differs from any previous proposition, is the passage of a silkworm-gut tension suture directly through the substance of the sphincter muscle half-way between its outer and inner borders. The purpose of this suture is to take the tension off from the buried catgut sutures during the healing process. Kelly prefers this suture to the Emmet tension suture, which is passed well behind the sphincter ends on the skin surface, because his suture acts more directly and does not tend to make the anal orifice so small; it is therefore easier to secure earlier and regular defecation.

The author not only dwells upon the method of securing immediate union of the

external sphincter muscle, but in conclusion insists upon the importance of paying equal attention to securing accurate approximation of the internal sphincter muscle, which must be effected in the following manner: One or two fingers are passed into the torn bowel and the thin septum is brought slightly forward, while with a knife or a pair of scissors the operator splits the septum on its mucous margin and then dissects upwards and inwards, separating the vagina and its columna from the septum in such a way as to isolate the rectum in front and on the sides. By taking a little care and observing the tissues closely, the bowel with the muscle is easily set free, and if the dissection is well done the internal sphincter fibers will be clearly recognized on both sides.

After all the scar tissue is removed the internal sphincter is then united by a series of interrupted fine silk sutures entering and emerging on the mucous surface of the bowel about a millimeter from the edge of the cut. These sutures are passed and tied from above downwards from one and a half to two millimeters apart. It is best to reenforce these rectal sutures by two or three catgut sutures buried in the septum above them and grasping the muscular coat of the bowel — that is to say, the internal sphincter — and drawing it together over the line of union established by the first set. After doing this the external sphincter is brought together as described above, and the remaining perineal and vaginal portions of the wound united as described in the text-books. The utmost care must be taken throughout not to leave any dead spaces in the septum or about the buried sutures.

After such an operation the bowels should be opened at least every other day by giving a warm oil injection through a soft catheter.

TETANUS SUCCESSFULLY TREATED BY ANTITETANIN.

GALLETLY (*British Medical Journal*, Feb. 18, 1899) reports a case of traumatic tetanus successfully treated by serum. The patient suffered from a crush of the finger and exhibited no symptoms of tetanus for nineteen days. Three days after the onset of symptoms twenty cubic centimeters of the antitoxin was injected; a smaller dose was given the next day, and this dosage was continued for four more days, when fifteen cubic centimeters was given twice a day. The next four days ten cubic centimeters was given twice a day, and for the next seven days the same dose once a day. Afterwards recovery was uneventful.

THE PRESENCE OF FOREIGN BODIES IN THE VERMIFORM APPENDIX, WITH ESPECIAL REFERENCE TO POINTED BODIES.

MITCHELL (*Johns Hopkins Hospital Bulletin*, January, February, and March, 1899) draws the following conclusions from his investigations:

Foreign bodies, at one time thought essential in appendicitis, are now known to play a much smaller rôle than that formerly accredited to them; and fecal concretions are much more apt to be present as an exciting cause. While many curious and unexpected things are occasionally found, the appendix nevertheless would seem to act especially as a trap for pointed bodies and for small heavy objects like shot or bullets.

Conspicuous among pointed bodies are pins, and their presence is by no means uncommon. Those foreign bodies of light weight, like grape seeds and cherry stones, so popularly assigned as the cause of appendicitis, and against which we are forever being warned, are in reality exceptional, and their frequency is much overestimated on account of the close resemblance of fecal concretions and the lack of careful examination of the bodies described.

TREATMENT OF TUBERCULOUS CYSTITIS IN CHILDREN.

CUMBSTON (*American Journal of the Medical Sciences*, March, 1899; quoted from the *Boston Medical and Surgical Journal*) gives the following outline of treatment for tuberculous cystitis in children:

Cod-liver oil, creosote, and tonics are of value, and iodoform in the form of a pill is highly recommended by Guyon and Reverdin. Locally, an iodoform or guaiacol emulsion is to be injected into the bladder and retained until expelled. The ulcerations may be cauterized and curetted if they be extensive. Being aware of the favorable results obtained from local application of lactic acid in tuberculous laryngitis, the author was led to try this agent in the bladder, and the results obtained in the case reported would appear to indicate that further use of this substance is justifiable.

The indications for suprapubic cystotomy vary according to the end to be obtained.

If it is done to bring about a radical cure, it should be performed only in cases of primary vesical tuberculosis, and then much can be expected from drainage of the bladder. The ulcerations can be directly cauterized with the thermocautery, or even excised through the opening. When this operation is done as a palliative measure—that is, when other foci of the disease are present and the cystitis is secondary—the relief from pain is quite enough to justify its performance.

TWO CASES OF COXA VARA, SHOWING THE RESULT OF DIVISION OF THE FEMUR BELOW THE TROCHANTERS.

WATSON CHEYNE (*British Medical Journal*, Feb. 18, 1899) exhibited before the clinical meeting of the Medical Society of London two cases showing the results which follow division of the femur below the trochanters and correction of the eversion of the leg incident to coxa vara. His idea in adopting this measure was to bring the foot and leg into the proper position so as to enable the patient to walk, leaving the region of the hip-joint untouched. At the time he performed his first operation he considered the possibility of correcting the deformity by removal of a wedge from the neck of the femur; but the parts were so small, the child being only three years old, that he feared lest he should have trouble in getting a proper correction, while at the same time it seemed almost impossible to hope to maintain the correction in such a young child. The first operation was performed in January, 1893. Apart from the restored usefulness of the limbs, the most remarkable and most unexpected result was that, as a consequence of dividing the femur below the trochanters, the progress of the deformity in the neck of the bone was arrested. This case was exhibited six years after operation.

When first seen the patient exhibited a deformity clearly referable to curvature of the neck of the femur, chiefly characterized by marked eversion of both legs, and greatly diminished inversion—in fact, the feet could hardly be brought around sufficiently to look directly forwards. The trochanters were not above Nélaton's line, the essential deformity being curvature of the neck of the femur backwards. An incision was made into the outer side of the thigh at the upper part of the femur, and the latter bone was divided transversely across by a saw a little below the trochanters. The foot and leg were then forcibly inverted until the normal degree of complete inversion was obtained, and were held in this position while the trochanters were pushed forward. A perforated oblong aluminum plate was placed over the femur opposite the line of division and nailed on to the two fragments by means of tin tacks which had been nickeled, thus preventing rotation of the leg outwards during union. The limb was put up in the inverted position, and the wound healed by first intention. Three years after operation an abscess formed over the seat of the former operation, requiring the removal of the plate and tacks.

The second case, operated on two years before exhibition, was three years old. She exhibited marked eversion of both legs, which could not be brought to look quite forwards, diminished abduction, and lordosis. The trochanters were at the level of Nélaton's line. There was anterior curvature of the femora, and flat feet. The child walked with a waddling gait and the knees tended to cross one another.

An operation similar to that just described was performed, the plate still remaining *in situ*.

The object of the operation has in both cases been completely attained; the legs are in perfect position, inversion and eversion of the feet and legs are normal, and the legs are as useful as if there had never been anything the matter with them.

The left leg, for which nothing has been done, in each case has improved markedly in usefulness, and the eversion has somewhat diminished, though not to any great extent. In both cases, however, the deformity has continued to progress, more especially in the direction of the elevation of the trochanters, which are now about half an inch above Nélaton's line, with the result that the left leg is in each case shorter than the one operated on.

The deformity on the side operated on has come to a standstill in both cases. Why it should have become arrested on the side operated on, while it has progressed on the other, is somewhat difficult of explanation. The trochanters on the limbs operated on still remain at the level of Nélaton's line; while, on the other side, they are at least half an inch higher. Consequently, the legs operated on are longer than the others. Two suggestions appear possible:

The process of repair and consolidation of the bone around the point of fracture may

have extended upwards into the neck of the bone, and led to consolidation and arrest of the softening process, which was leading to the curvature.

The branches of the nutrient artery to the neck of the bone were divided in the operation, and, as a result of diminished vascularity, consolidation of the neck may have been hastened.

LUNG ABSCESS TREATED BY PNEUMOTOMY.

LICHTENAUER (*Deutsche Zeitschrift f. Chirurgie*, January, 1899) reports a case of lung abscess treated by pneumotomy and subsequently the closure of the resultant fistula. It is well known that the great cavities, left after the evacuation of an old empyema, are filled rather by lung expansion than by molding of the chest walls to accommodate the lessened thoracic contents. Such molding, however, cannot take place when the parietal and visceral pleura are adherent, and the cavity has been created not by pressure upon the lung but by destruction of its substance.

Lichtenauer's case (a man fifty-two years old) was injured in the chest by a horse, and some weeks later was troubled by a cough and a period of expectoration. The lower part of the left thorax projected posteriorly and was dull on percussion. The sputum was putrid, containing pneumococci and streptococci. An exploratory puncture, just behind the posterior axillary line in the ninth intercostal space, evacuated thin, offensive pus.

The eighth and ninth ribs were resected, showing that the pleural cavity was empty, that the lung was hepatized, and that there was fibrinous pleuritis. The pleura was sewed and an incision was made into the lung substance in the direction of the exploratory puncture. This evacuated about six ounces of offensive pus, leaving an irregular cavity about the size of a hen's egg, which opened above into a large bronchus. This cavity was drained and packed. A fistula remained, which shortly closed, opened and again closed, and so remained for some months, when there was reaccumulation of pus and a renewal of the symptoms requiring operation.

The second incision was carried through the old scar and evacuated a large quantity of offensive pus, leaving a cavity the size of a man's fist. Firm packing was required, because of hemorrhage. The openings of the bronchial tubes into this cavity were occasionally touched with Paquelin's cautery. Later a further opening was required from the outside because of insufficient drainage, after which elastic compression was applied to the left side of the thorax. This compression was at first disregarded at night, and finally was worn all the time. It was applied for the purpose of accomplishing a gradual mechanical diminution in the left thoracic space, so that the contraction of the scar tissue could diminish or quite obliterate the lung cavity. This end was accomplished in about a month, and six months later the patient reported as perfectly well.

The writer, in commenting upon this case, states that it is one of acute gangrene, later complicated by moderate bronchiectasis. He quotes Quincke's records, to the effect that of five cases of simple bronchiectasis none were cured, in two the operation failed to reach the dilated bronchus, one was improved, and one suffered from fistula afterward. Of ten cases of putrid bronchiectasis, none were cured, five died, two were operated upon without result, and in three the results of the operation were incomplete. Of these three, two were sent out with fistulæ and in the third the bronchiectasis cavity was not found.

Tuffier out of forty-five cases records seven cures.

Neuber has reported a patient who was living and in good health, though for four and a half years he suffered from a fistula following the opening of a bronchiectasis.

The cauterization of the dilated bronchus was in the author's case futile, since obliteration of the cavity by contraction was not possible. The only means by which this cavity could have been closed was by molding the chest wall by elastic compression.

FORCEPS LEFT IN PERITONEUM.

MORESTIN (*Vratch*, No. 26, 1898; quoted in the *British Medical Journal*, Feb. 18, 1899) relates a case illustrating the grave results of overlooking instruments when an abdominal incision is closed. In August, 1894, a woman, aged twenty-nine, had both appendages removed for double pyosalpinx. An abscess developed in a suture track and became fistulous. In December, 1894, left parametritis set in, and an incision was made in the iliac fossa. An abscess developed in the cicatrix of the abdominal incision, and on opening a fecal fistula developed. Profuse suppuration ensued, and an incision into the lower part of

the abscess was made through the vagina, followed by drainage. The patient's health improved for awhile, but urine soon began to pass from the vagina, the abscess having communicated with the bladder. The vesico-vaginal fistula seems to have closed spontaneously; but in March, 1897, urine once more dribbled from the vagina, and one month later a parametric phlegmon developed on the right side and was opened. Not long afterwards an end came to the patient's four years' penance. One day she passed at stool a pressure-forceps 4½ inches long. She showed it to her medical attendant, and was at length restored to perfect health.

CANCER OF THE LIP.

FRICKE (*Deutsche Zeitschrift f. Chirurgie*) finds that of 1193 cases of carcinoma of the lip, the upper lip was affected in but sixty-three instances. In other words, this disease is nineteen times as frequent on the lower as upon the upper lip. Moreover, out of 1264 carcinomas of the lower lip, women were affected in but ninety cases. As a further interesting observation, Fricke notes that while in men the upper lip is affected in 4.3 per cent of cases, in women it is affected in 27.4 per cent of cases.

The age of the patient varies from twenty-four to eighty-three years, the average being about sixty years. As to the etiology of the affection, Fricke notes that a very large portion of those affected are workers in the open air, especially farmers. Heredity apparently plays a distinctly minor rôle. Pipe-smoking is a predisposing factor, as are wounds and abrasions. The carcinoma usually begins as an ulcerating single induration.

As to the period at which carcinomatous infiltration of the lymph glands takes place, it is quite certain that simple enlargement or even marked induration does not positively indicate such a change; since glands macroscopically affected on removal have been found to be free of malignant degeneration.

As to the chances for the patient suffering from carcinoma of the lip, Fricke concludes as a result of a limited study that eight per cent will die as the immediate result of operation; thirty-two per cent will suffer from recurrence; and sixty per cent will be permanently cured. The prognosis becomes distinctly bad when the infiltration has reached the jaw or has involved the lymphatic glands or is very extensive. Fricke believes that every ulcerating wart about the lips which resists treatment should be promptly extirpated under local anesthesia by means of a pair of scissors. When the growth has progressed beyond this stage, every anatomically related lymphatic gland which is placed in its typical position must be removed. If the glands are not perceptibly enlarged, they are taken out with the surrounding fat. First the glands, then the tumor, is extirpated. This sequence is important.

An extensive infiltration is dangerous, because it implies almost necessarily lymphatic infection, is likely to involve the jaw, and because it leads the surgeon to perform a more or less incomplete operation from fear of producing irremediable and unbearable deformity. As a rule the incision should be carried two-fifths of an inch wide of all obviously affected tissue. There were only three cases of local recurrence out of 113 operations in which this rule was followed.

Four times erysipelas developed during the course of healing; three of these patients died of recurrence. There was no reason to suppose this affection had the slightest beneficial effect upon the subsequent course of the disease.

A SUCCESSFUL CASE OF STAPHYLORRHAPHY.

Although it is comparatively easy to obtain a good mechanical result by the operation of staphylorrhaphy, it is well known that this closure of the palate is in the majority of cases followed by such slight functional improvement that many surgeons have rejected the operation entirely, believing that the interests of the patient are best consulted by filling in the gap in the roof of the mouth by a properly fitted artificial hard and soft palate.

This being the case, the result reported by LESTER (*Laryngoscope*, March, 1899) is particularly gratifying, since his patient was nineteen years of age, and had undergone two unsuccessful operations for the closure of the cleft. Moreover, a skilful dentist absolutely failed to provide a serviceable artificial appliance. His vocalization was difficult, the letters *s*, *z*, *k*, and *q* being especially trying to him; and during deglutition food always entered the nasal cavity. Expectoration was only accomplished by pinching the nose tightly between the thumb and finger.

The stitches used were of wire; they were left in fourteen days. Conversation was

limited as far as possible, and only liquid food was given for the first ten days following operation. After complete healing of the tissue, the patient was directed to speak in low, deep, guttural tones, using words which contained the letters which had previously been most difficult for him. He completely recovered the power of deglutition, his phonation became almost perfect, and under the various exercises which he was given the resiliency of the soft palate nearly approached the normal.

TREATMENT OF SPERMATORRHEA AND PROSTATIC AFFECTIONS BY FARADIZATION.

Dr. MORITZ POPPER (*Wiener Medizinische Blätter*, Jan. 26, 1899) states that the faradic current offers a method of healthful stimulation to the prostate preferable to the mechanical one of massage; that it empties gonorrheal pus from the gland and ducts; in acute cases lessens hypertrophy; and cures the weakness of the compressor muscles, which is the fundamental cause of sleep pollution, as well as the atony which gives rise to spermatorrhea and prostatorrhea.

UROHEMATONEPHROSIS TREATED BY NEPHRECTOMY.

LOISON (*Annales des Maladies des Organes Génito-Urinaires*, January, 1899) reports the case of a soldier twenty-two years old exhibiting a large tumor in the right flank. He had never suffered from any urinary symptoms, but had received, a month before he came under observation, a blow in the right loin, which though painful had not crippled him. The tumor was the size of a fetal head, bulged out the fellow's ribs, and formed a projection in the flank. It presented the dulness on percussion, the position, the slight mobility, the indolence, and the fluctuation of a fluid tumor of the kidney. The urine was albuminous. Aspiration practiced in the nipple line evacuated only about an ounce of blood-stained fluid, containing phosphates. This intervention was followed by some signs of peritonitis. The next day the patient passed, *per urethram*, liquid exactly like that evacuated by puncture. A few days later the urine became perfectly clear, and an effort at ureteral catheterization was made by Albarran, but failed. Loison, therefore, practiced a transperitoneal nephrotomy and evacuated six quarts of dark-brown fluid. The cavity was drained and again secreted very abundantly. The secretion continuing for four months, and the remaining kidney having shown itself to be competent to perform the work of the economy, lumbar nephrectomy was practiced. The ureter was found to be tightly strictured at the point where it joined the pelvis. The kidney had been converted into a huge sac, the walls of which contained some remains of kidney structure.

Trouffier, in commenting on this case, states that these bloody collections in the kidney pelvis, when not secondary to traumatism, are due to a preexisting uronephrosis. The two cases which he personally observed were due to a neoplasm partially obliterating the ureter, and thus causing the hydronephrosis, which was later complicated by hemorrhage. In one case there was periodical hematuria, due to the ureter becoming at times flattened; in the other a huge tumor formed in the loin, which was opened by incision, giving vent to a sudden gush of blood which suggested the wounding of a large vessel. A small tumor was found in the hilum. The patient died fourteen months later.

The case reported by Loison was probably one of congenital hydronephrosis, bleeding having been due to the contusion of the side, although simple distention without external violence may cause such bleeding.

As to the treatment of these cases, transperitoneal puncture is to be avoided. If the transperitoneal route is taken in evacuating these collections, the peritoneal covering or kidney should be incised and should be sutured to the parietal peritoneum, thus excluding the general peritoneal cavity before opening the collection. By all means the best approach is by the lumbar route.

Bazy reports a case of an enormous distention of the kidney pelvis by bloody urine, cured by transperitoneal evacuation and by pelvic implantation of the ureter, thus forming a direct and sufficient opening between the pelvis and ureter. The hemorrhage in this case was due simply to distention, and was quite analogous to that variety of bladder bleeding which occurs in this viscus when it becomes enormously distended.

Poirier, in the discussion upon this general topic, stated that he recently has removed a kidney affected with chronic nephritis, because of the amount of blood lost through it. The patient, forty-eight years old, had lost rapidly in strength and weight for three

months. The cystoscope showed that the right ureter discharged jets of almost pure blood. This led to the diagnosis of calculous nephritis. An operation, however, failed to show a calculus. The kidney was therefore removed, since it showed signs of marked degeneration.

THE SIGNIFICANCE OF RENAL PERMEABILITY TO METHYLENE BLUE.

NESTI (*Annales des Maladies des Organes Génito-Urinaires*, January, 1899), after having reviewed the various works upon this subject, quotes a number of personal observations upon a variety of different affections, such as ulceration of the stomach, chronic interstitial nephritis, parenchymatous nephritis, both active and chronic, pleurisy, etc., and concludes that the method indicates only the permeability of the kidney to methylene blue, and has no other significance whatever. In this relation he notes the fact that people may die of uremia when renal lesion is scarcely appreciable, whilst kidneys almost completely converted to a mass of connected tissue have shown an astonishing degree of secreting power.

GONORRHEAL STRICTURE OF THE RECTUM.

BERNDT (*Edinburgh Medical Journal*, March, 1899) reports eighteen cases of gonorrheal stricture of the rectum from Mikulicz' clinic in Breslau. Four of the patients were of the male sex. The stricture arises independently of ulceration, and is the result of chronic gonorrhea, with inflammatory infiltration of the entire thickness of the wall of the rectum. The condition was preceded by an inflammation of Bartholin's gland in five cases. There was an additional history of syphilis in six cases. Mikulicz holds, however, that the majority of cicatricial strictures of the rectum are of gonorrheal origin, whether one succeeds in finding the gonococcus or not. In five patients the infection of the rectum was favored by a very relaxed condition of the sphincter ani.

The stricture is usually found from one to four inches from the anus, but the stenosis may extend as high as the sigmoid flexure. The lumen of the stricture feels tough and scar-like, with a smooth lining; the rectum is often firmly fixed to the surrounding tissue. Hemorrhage is a symptom in nearly seventy-five per cent of the cases, and appears to result from ulceration above the stricture.

The treatment consists in regulating the bowels, in employing antiseptic douches, and in dilating the stricture with bougies, which are to be left *in situ* as long as possible. The patient may learn to pass the bougies. Division of the stricture by simple posterior incision was performed upon three occasions, but was not successful. A radical operation was preferred in the majority of cases; it consisted in making a preliminary artificial anus, and then excising the rectum. In two patients the artificial anus was omitted, and one of them died of peritonitis. The artificial anus may be closed at a later period, if the new rectum is found to perform its functions satisfactorily.

PERFORATING ULCER OF THE DUODENUM.

The diagnosis and treatment of diffuse septic peritonitis caused by the perforation of a duodenal ulcer is made the subject of a report by SCHWARTZ (*Edinburgh Medical Journal*, March, 1899). As regards the situation of the ulcer, it is nearly always found in the first part of the duodenum (within two inches of the pylorus in 242 out of 262 cases). In twenty-six cases there was more than one ulcer; in the remainder it was solitary (eighty-five per cent) The anterior wall is its favorite seat. It has a much greater tendency to perforate than the corresponding ulcer of the stomach. Collin estimated that perforation takes place in sixty-nine per cent of the cases, and it usually occurs into the general peritoneal cavity. Preliminary symptoms of disease in the duodenum are exceptional.

The clinical features of perforation are similar to those of perforated gastric ulcer: severe pain in the epigastrium or beneath the right costal margin; rapid development and progress of general illness; the temperature rarely rises above 101°, and may remain subnormal; the pulse is quickened; vomiting is frequently absent, especially in the earlier history of the illness; nothing can be learned by palpation, on account of the early rigidity of the abdominal muscles. The liver dulness is replaced by a tympanitic note. Nothing is passed per rectum.

The condition is very rarely diagnosed with accuracy; it is frequently mistaken for appendicitis or obstruction of the bowels. Operative interference has usually been delayed until it is too late. Out of twenty-five cases, only three recovered from the operation, and of these one died two months later

of intestinal obstruction caused by adhesions, and another died six months later from the perforation of a second duodenal ulcer. The only hope of success lies in operating at the earliest possible moment. On account of the frequent accumulation of pus in the right iliac fossa and underneath the liver one is apt to be misled, and to regard the lesion as appendicial in origin.

In view of the very high mortality which attends duodenal perforation, Tuffin recommends that the ulcer should be submitted to surgical treatment before it perforates, and that this treatment had best take the form of a gastroenterostomy.

THE TREATMENT OF INTUSSUSCEPTION.

MURRAY (*Liverpool Medico-Chirurgical Journal*, January, 1899) had a careful search made through the records of the Children's Infirmary at Liverpool, and found that out of 130,000 new patients there were only sixteen cases of intussusception, or roughly one in every 8000. Of these sixteen cases only seven recovered. The age at which intussusception usually occurs is somewhere between the fourth and sixth month of life.

In employing mechanical means of reduction, Murray states that it has been possible to prove that the pressure of the injected fluid should on no account exceed that equal to a column of water three feet high, since otherwise there is a very real danger of rupturing the inflamed gut. He states that chances of effecting reduction by injection are three to one against it. Therefore, Murray advises in all cases primary laparotomy. His personal experience is limited to three cases. In one the intussusception could not be reduced; it was excised and the child died. In the second case the bowel was reduced with great difficulty; the child might have recovered, but unfortunately, being very cold and collapsed at the time of operation, it was placed on a too hot water pillow, and its back and buttocks were so badly scalded that it died.

The third case, an infant six months old, after some hours of fretting and crying, passed blood and mucus per rectum and became collapsed. There was a distinct tumor occupying the position of the transverse colon, but not palpable from the rectum. The intussusception was of the ileocæcal variety and was about six inches long; it was brought to the surface through a median incision and was reduced. The infant completely recovered.

In discussing this paper Hawkins-Ambler reported the case of a boy three years old suffering from intussusception for five days. It was impossible to withdraw the incarcerated gut more than half an inch when it began to tear; therefore the ensheathing gut was sewn to the abdominal wound and opened; the gangrenous gut was divided with scissors through this opening, some three inches of it removed, and the obstruction overcome. The child died twelve hours later.

Puzey reported the case of a child aged five years admitted to the hospital in a collapsed condition, with a mass of gut protruding from the rectum. This was made out to include the cæcum and vermiform appendix, the entrance to the latter being demonstrated by probing. The gut appeared healthy but deeply congested and covered with fetid mucus. The child was anesthetized, held up by the feet, and the prolapsed mass was returned within the rectum and pushed up as high as possible; then hydraulic pressure was brought into play by means of funnel and elastic tube, while the intussuscepted lump was manipulated through the abdominal walls. This process was carefully and gradually carried out until the very small lump remaining rested in the right iliac region. At the end of a week no trace of the lump could be felt. The bowels were freely moved after an enema, and a year and a half later the child was fat and well.

INCONTINENCE OF URINE IN SYPHILIS.

HÉRESCO and DRUELLE (*Annales des Maladies des Organes Génito-Urinaires*, January, 1899) publish an observation showing the symptoms of tabes and of the cord lesions of syphilis are very much alike, differing only it may be in the fact that the latter yields to treatment. The case that they report exhibited darting pains, complete disappearance of one patellar reflex and diminution of the other, and some of the other well known signs of tabes. There was, moreover, both diurnal and nocturnal incontinence of urine, which lasted four months and had been preceded by retention. This patient was subjected to injections of calomel, the preparation employed being twenty parts of sterilized olive oil to one part of pulverized calomel. The result, as far as the urinary symptoms were concerned, was almost immediate.

Reviews.

THREE THOUSAND QUESTIONS ON MEDICAL SUBJECTS ARRANGED FOR SELF-EXAMINATION. With Proper References to Standard Works, in which the Correct Replies will be Found. Second Edition.

Philadelphia: P. Blakiston, Son & Co., 1899.

As the title of this little volume (which is about five inches long by four wide) indicates, it is designed for self-quizzing and also as an advertisement for many of the text-books which are issued by this well known firm of publishers, for the numbers which indicate where the answer will be found, and which are printed after each question, usually refer to a book published by Blakiston, and most commonly to the quiz series. On the other hand, it can be stated that the questions are most of them clear and to the point, and that the little book can be used by students with advantage, and perhaps also with advantage by practitioners who wish to "brush up" their medical knowledge in the various departments of elementary and practical medicine.

LEHRBUCH DER ARZNEIMITTELLEHRE UND ARZNEIVERORDNUNGSLEHRE. Unter Besonderer Berucksichtigung der Deutschen und Oesterreichischen Pharmakopœ. Von Dr. H. Tappeiner.

Leipzig: Verlag von F. C. W. Vogel, 1899.

This volume of a little over 300 pages is a condensed manual of materia medica and therapeutics, devoting itself chiefly to the materia medica side of the question rather than to the application of the various remedies and the actual treatment of disease, although, on the other hand, in a large number of instances formulæ are given to illustrate the method in which the drugs may be ordered. These prescriptions are of course given in the German method and with the metric quantities. We do not believe that the work will have much demand in this country, even if it is translated, because it does not meet the requirements of the average American medical student, but it is one of the best brief books upon this subject which we have seen issued from the German press.

A MANUAL OF BACTERIOLOGY. By Herbert U. Williams, M.D. Illustrated.

Philadelphia: P. Blakiston, Son & Co., 1898.

There is less objection to the text in this book than there is to the illustrations, which are crudely executed, although as a rule they are sufficiently clear to carry out the purpose of the author. Little can be said against the volume, but on the other hand it can be said that there are others in the market at the present time which meet the needs of the student microscopist and bacteriologist better than the one before us. The present volume seems to be chiefly a compilation from other books of this character.

SURGICAL NURSING. By Bertha M. Voswinkel. Second Edition.

Philadelphia: P. Blakiston, Son & Co., 1899.

The second revised and enlarged edition of this excellent manual covers practically the same ground as that included in the first edition. As is usual in these works, more space is devoted to hemorrhage than the importance, or at least the frequency, of this accident justifies. A considerable part of the book is devoted to bandaging, fixed dressings, and splints and braces. There is a chapter on massage, and an appendix on invalid cookery and on poisons and their antidotes.

The work is likely to prove a useful addition to the somewhat limited literature which is at present adapted to the nurse's use.

A COMPEND OF HUMAN PHYSIOLOGY FOR THE USE OF MEDICAL STUDENTS. By Albert P. Brubaker, A.M., M.D. Ninth Edition, Revised and Enlarged.

Philadelphia: P. Blakiston, Son & Co., 1899.

The hundreds of medical and dental students who have been taught by Dr. Brubaker in the Jefferson Medical College and Pennsylvania College of Dental Surgery can testify to his ability to render lucid this subject of elementary medical study, which in the hands of a capable teacher is exceedingly interesting, and in the hands of an incapable one equally prosy. The fact that Dr. Brubaker's compend has reached the ninth edition is an evidence that it has met the need of the students for whom he has prepared it, and it is so complete, though concise, that many of the objections to these condensed manuals do not hold concerning it. As a first-rate summary of physiological knowledge it can be cordially commended.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

The London School of Tropical Medicine has weathered the various storms that beset its fetal existence, and in the course of a year or so will have passed into a working activity. The scheme has just come before Parliament, when the money necessary for the buildings was asked for in the civil service supplementary estimates. The scheme approved itself to both sides of the House, as indeed it must do to every thinking man, as the first step towards combating the grievously large mortality in West Africa from diseases of which we know nothing, because

we have had no facilities for studying their etiology. *Vere scire est per causas sciro.* Simultaneously we hear that the affronted medical staff of the Seamen's Hospital at Greenwich have resigned *en masse.* It is a pity that a technical discourtesy, such as has undoubtedly been offered to the medical staff of the parent institution, should have cast its shadow over the cradle of this very excellent creation of the Colonial Secretary.

The Sixth International Congress of Otology will meet in London under the presidency of Dr. Urban Pritchard from August 8 to 12. The meeting will be held at the examination hall of the Conjoint Board, and the following details have been arranged: On Monday evening, August 7, a preliminary reception will be held by the President. On August 8, 9, 10, and 11, the Congress will be in session, and excursions will be arranged for the following days. The official languages of the Congress are English, French, German, and Italian. The subject chosen for special discussion is "Indications for Opening the Mastoid in Chronic Suppurative Otitis Media," which will be introduced by Professor W. MacEwen of Glasgow, Dr. H. Knapp of New York, Dr. Luc of Paris, and Professor Politzer of Vienna. Intending members of the Congress are requested to send in their names to the Honorary Secretary-General as soon as possible, also the titles of communications with a short abstract. A museum of specimens and of instruments relating to otology will be held during the meeting.

There is a great deal of influenza of a comparatively mild type at present in London, and the mortality returns do not at present show any decline. We are still as powerless as ever to grapple with the disease; each year has its "specific," and now we are being told that cinnamon works wonders. Dr. Grant, of London, as long ago as 1895 recommended its use from his experience of the antiseptic value of the drug in Ceylon, where immunity from severe malaria is enjoyed by those who work in cinnamon gardens. Dr. Carne Ross goes so far as to say that no patient, if promptly and systematically treated, need be on the sick-list, even after a most severe attack, for more than five or six days. He gives the drug either in tablet form or as a strong decoction. He orders half an ounce of decoction of cinnamon, or two tablets, every half-hour for two hours; then the same dose to be continued every hour till the temperature falls to normal. After the temperature has become normal the same dose is to be taken four times a day for four days; the patient is not allowed to leave the house for twenty-four hours after the temperature has become normal. It seems that an essential of success is that the treatment should be commenced within twenty-four hours of the onset of the attack.

At the Clinical Society of London Mr. Arbuthnot Lane read notes of a case of erasion of the ankle-joint, illustrating a new procedure for the complete removal of tuberculous material from the joint. In his previous method of operation he divided transversely all the structures around the joint except the internal lateral ligament, the tibialis posticus, and the flexor tendons of the toes. The divided tendons were carefully sutured, but in spite of this, usually because of infection of the joint previous to operation, they occasionally united imperfectly, and deformity and imperfect control of the foot resulted. In his new procedure, besides the transverse incision through the skin he makes vertical incisions long enough to allow him to expose fully a considerable extent of the several tendons. In the young infant he found he could expose the interior of the joint by dividing only the peroneus tertius and the anterior and posterior ligaments, simply turning the remaining tendons out of their sheaths and hooking them aside. In older children it was necessary to divide the peroneus longus as well high up, cutting through muscular and tendinous fibers, securing larger and more vascular areas in accurate apposition, and keeping the sutured portion at a distance from the joint, and so diminishing the risk of infection. In these children it was better to apply the same treatment to the peroneus tertius as to the peroneus longus.

Mr. Walsham made an interesting communication to the Royal Medical and Chirurgical Society on the treatment of aneurisms by extirpation, with notes of a case in which he had recently performed this operation. In his own case the sac involved the common, internal, and external carotid arteries of the right side of the neck, and a notable feature was the absence of pulsation, so that the nature of the tumor was only discovered after exploration The absence of pulsation in this case was not due to leaking of the sac, and so presumably was due to blocking of the mouth with clots. The common carotid was ligatured in two places below the sac, and divided between the ligatures; the sac was

dissected up, collateral vessels entering it were secured as met with, and finally the internal carotid was ligatured above. The sac was then removed entire. The patient made a good recovery. The chief methods of extirpating aneurisms are: (1) The old operation of opening the sac, turning out the clots, and securing the artery above and below; (2) the old operation, together with removal of the sac by dissection; (3) the removal of the sac after the artery has been tied above and below. Walsham considered the last of these by far the best, slightly modified by dividing the proximal artery between two ligatures, dissecting up the sac, and finally tying the distal vessels. The conditions most favorable for extirpation appeared to be: (1) Where there is insufficient room to apply a ligature to the artery on the proximal side, or where a proximal ligature is attended with great risk, as ligature of the innominate for subclavian aneurisms; (2) where a large number of large vessels communicate with the sac; (3) where other measures have failed to cure the aneurism; (4) where the aneurism, as in the popliteal artery, has become diffused, or rupture of the sac or gangrene of the limb is threatened; (5) where the setting free of emboli, as in carotid aneurisms, would be attended with risk of cerebral softening. It was shown from a tabulated series of thirty-three cases of extirpation of aneurisms that the procedure had at any rate this distinct advantage, that after removal of the whole aneurismal sac the wound healed much more readily; moreover, if some of the wall of the aneurism was left, vessels coming off from it might escape ligature, and so give rise to secondary hemorrhage.

We would call attention to a recent communication to the Royal Medical and Chirurgical Society by Drs. Williams and Horrocks on the treatment of pulmonary tuberculosis by antitubercular serum. The injections were made with serum from a horse which had been inoculated with tuberculin, and apparently rendered immune. Twenty-one days after the last injection a liter of blood had been drawn from the left jugular vein, the clot removed, and the serum separated and mixed with carbolic acid solution. This serum was supplied for use in sterilized bottles of ten cubic centimeters each, protected from the external air with an india-rubber cap. The bottles were kept in ice, and, as far as possible, the entire contents of each bottle used up at the time of injection. As a rule the syringe, which held ten cubic centimeters, was filled, and injection made into successive patients until the syringe was emptied, care being taken to wipe and sterilize the nozzle after each injection. The individual dosage varied from one to ten cubic centimeters at a single injection. At first the serum was tried on five cases of a more or less acute character, the object being to determine what influence a prolonged use of the serum had on the march of tuberculosis, as evidenced by the constitutional symptoms, the sputum, and the physical signs.

Passing over the details of the five cases, the authors, in remarking on the effects of the treatment, say that the serum produced, among other things, two most striking effects: (1) the urticarial rashes which appeared in four of them, and seemed to be caused by the carbolic acid contained in the first samples of serum, as a subsequent series of injections with serum that contained little or no carbolic acid gave rise to no rashes; (2) the swelling of the axillary glands, generally of both sides, which occurred in all the patients, and followed all the samples of serum. The effect on the temperature and pulse was rather irritative than otherwise, the expectoration increased in quantity, but there was no diminution in the number of tubercle bacilli, except in one case, though in three cases the lung tissue diminished and in one it increased. Septic organisms were present originally in four of the five cases; they disappeared from two and diminished in number in the other two. The general condition of the patients deteriorated, though two of them gained a few pounds, in spite of pyrexia and severe cough; and at the close of the treatment the physical signs showed that the serum treatment had not in any way checked the ordinary evolution of the disease, but that tuberculization and excavation had gone on uncontrolled. Experience, however, taught two lessons—one that the serum was too strong, that it probably had been drawn from the horse too soon after inoculation; another that the doses had been increased too rapidly, the greatest average interval being three days.

Tuberculin seems to have the power of passing through an immune animal but little changed, unless it has remained some time in the animal's system, for certainly the effects of the serum on some of the patients bore a close resemblance to those of Koch's first tuberculin. The first serum was taken twenty-one days after inoculation.

In a second series of four cases, patients with phthisis in its early stages were selected, and the serum employed was taken seventy-two days after inoculation, and used in small doses, and persevered with until complete tolerance was established. The results formed a marked contrast to the results in the first series, and there seemed to be no doubt as to its beneficial influence, when administered in a milder form and in less severe cases. The treatment was carried on for longer periods than in the first series, and the patients received from thirty-two to fifty injections, the dose of serum varying from one to five cubic centimeters, but never exceeding the latter amount. The injections were well borne, and in no case was there any local swelling or irritation or rash, either of urticarial or erythematous form, but in all swelling of the axillary glands of one or both sides took place, as in the first set. The temperature was practically unaffected, as were also the pulse and respiration. All four patients gained in weight, and remarkably in general well-being. Cough and expectoration greatly diminished in all, and in one ceased altogether. All showed improved physical signs. In the two cases of consolidation they indicated some limitation of the diseased area; in those of excavation, in one the cavity became quiescent, and in the other it contracted completely. With regard to the sputum contents, lung tissue did not appear at all in the course of the treatment, as it had done in one of the first cases. Tubercle bacilli diminished in the consolidation cases and were absent from some specimens, but they were present in others, and were detected from time to time as long as there was any sputum.

The effect of this second and milder form of antitubercular serum was not tried in cases of advanced or acute tubercular disease.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

The treatment of ulcer of the stomach is at all times difficult, and though most physicians have so far admitted that the best results were furnished by rest and the use of milk, some members of the medical profession have of late taken a new stand. Dr. Gaucher's treatment of the hematemesis due to ulceration of the stomach consists first in complete suppression of all food given by the stomach, and secondly, the use of rectal injections of:

Bouillon without fat, 25 grammes;
Wine, 25 grammes;
Peptone, two large spoonfuls.

Four injections are given daily.

As a means of quenching thirst an enema of a hundred grammes of water can be administered night and morning. By counting in one evacuatory injection, this makes the respectable total of seven enemas a day. Besides this injections of artificial serum are made daily, amounting on an average to about 700 grammes. When there is collapse after a severe attack of hemorrhage an intravenous injection is indicated. In such cases Dr. Gaucher strongly recommends the use of the ice-bag, which must be placed exactly at the pit of the stomach, and which has a most beneficial effect. This treatment should be carried out thirty days on an average; then milk (two cupfuls) may be tried to begin with, and this dose increased up to a liter, then to two liters, daily. Mashed potatoes and other feculent substances may then be added, and little by little ordinary food administered.

Such is the treatment indicated by Dr. Gaucher, but it has been attacked by Dr. Jorissenne, of Liège, in an article published recently in the *Presse Médicale*. Dr. Jorissenne starts out by saying that complete rest of the stomach is needed, and this proposition, which has been admitted by all authors, consists, first, in complete rest of the body, and secondly, in complete rest of the organ.

Since Cruveilhier's time all authors, such as Strümpel, Vanlair, von Ziemssen, Mathieu, and others, have insisted on the milk diet and on the use of alkalies, some, like Debove, going as far as to give very large doses of bicarbonate of sodium. But this is hardly logical, as milk is a very complex food and necessitates the use of the gastric juice. Then there is generally formation of lactic acid. Another point to be considered is that the use of large quantities of milk will be a predisposing cause to dilatation of the stomach, still another factor which will not tend to hasten cicatrization. Another thing is that it has not yet been clearly demonstrated that a slightly acid reaction of the mucous membrane tends to prevent healing of the ulcer. Carbolic, boracic, tannic acids in light solutions do not prevent cicatrization. Dr. Jorissenne criticizes also the habit that most physicians have of telling their patients, when they are in better condition, to eat often, but little at a time. Such a rule is

antiphysiological and does not seem to be of any use.

Dr. Jorissenne then describes his treatment, which can be briefly given in the following terms: Complete rest in bed. When there is dilatation of the stomach, an hour or two after meals the patient should be placed on his right side and held in that position by a cushion arranged at his back. Rest for the stomach is obtained by suppressing all food and by using alkalinized water, when the tongue is coated and there is not much acidity. Lime-water is indicated when the tongue is clean, red, and irritated. This should be given at a temperature varying from 30° to 35° C. A fair amount of it should be given, but not much at a time. The contents of the stomach are kept from becoming acid by the use of alkalies; it is quite proper for us to give nutritive enemata. In some cases nitrate of silver may be given—five milligrammes in a pill with kaolin; two to three pills are to be given every day. No preparations of iron should be ordered. Ordinary food should be taken up progressively. The author recommended in this article the use of a solution of peptones as a means of warding off indigestion—two large spoonfuls in a cup of salt tepid water.

The discussion on the treatment of appendicitis has now lasted in Paris about three months, the interventionists and non-interventionists speaking each in turn for or against an immediate operation—Dr. Dieulafoy, a physician, professor of clinical medicine at the Hôtel Dieu, being the champion of the cause of immediate intervention; Dr. Tillaux, professor of clinical surgery at the Charité, being on the other side, and holding up as a means of curing an attack of appendicitis the old medical treatment, consisting in the use of ice, laxatives, or opium. However, there have been of late several surgeons who have passed from one camp to the other, and of these the most noticeable is Dr. Gérard-Marchant, surgeon of the Boucicault Hospital. Dr. Gérard-Marchant some three or four weeks ago had taken a certain stand due to what he had seen in six cases of appendicitis where expectation had proved quite sufficient. However, two or three weeks later he was called to the Boucicault Hospital by his internes to operate on a young woman showing slight signs of appendicitis, with the exception of the pulse; and on operating upon her he found a perforation. This operation, as he says in his letter, caused him to change his mind as to the advantage of delaying intervention, and he now considers it necessary to always operate on all clearly defined cases of appendicitis.

Dr. Dieulafoy has spoken at such length on the treatment of appendicitis that what the medical fraternity call "*les gens du monde*" have heard or read of his various communications to the Académie de Médecine and believe him to be a surgeon. He undoubtedly sees more cases of appendicitis than any other physician in Paris, and his statistics are therefore more complete in one way than those of other medical men, even though they be surgeons. He cited sixty-six cases where an operation was performed, and gives in alphabetical order the names of the surgeons: Bouilly, Chaput, Cazin, Hartmann, Lucas-Championnière, Monod, Gérard-Marchant, Marion, Pozzi, Richelot, Routier, Segond—a list which serves by exclusion as a sort of *index expurgatorius*. Dr. Dieulafoy concluded by saying that a patient should never die of appendicitis provided an early enough operation was performed—*i.e.*, twenty-four hours after the first symptoms in acute cases, with considerable reaction; thirty-six when the case was not so rapid.

THE ABUSE OF QUININE.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: In the March number of the THERAPEUTIC GAZETTE appears a short article on the abuse of quinine, which is good and timely. Probably there is no drug which is so abused by the profession to-day as quinine. Quinine is an antiperiodic and tonic. As an antiperiodic it should only be given in the intermission or remission of fevers, and then in reasonably full doses; as a tonic, in small doses after the fever has entirely subsided. Even as a tonic, if it is to be continued any length of time, it is better to combine it with iron, strychnine, or nux vomica. Then one grain or a grain and a half three times a day will be borne better and do more good than larger doses. A long experience has taught me that this is the proper way to use quinine. In this way we can get the best results from this invaluable drug, and with no injury to the system.

But how do we find it used by a large number of physicians, especially by the younger class? It is given indiscriminately in all fevers, and in all stages of fevers. This I have seen time and again, and know it is not an uncommon practice. This leads me to suspect that there must be a failure on the part of our medical colleges to give proper

instruction on the use of this very important drug. I say very important, but that hardly expresses it; it is invaluable, but it is capable of doing, and does do, an immense amount of harm when abused.

When quinine is given in the fever, as is usually done, in two- or three-grain doses every two or three hours, it increases the fever, raises the temperature, produces nervous disturbance, headache, sleeplessness, and in every way aggravates the suffering of the patient.

The daily use of quinine in large or small doses, for any length of time, to ward off malaria is an abuse of it. It does more harm than good. During the civil war in 1862 my regiment was in northern Mississippi, where there was much malaria. While there I received an order, which originated with the surgeon-general, to deal out to all the men a daily ration of quinine and whiskey. I had previously practiced eleven years in a malarious district and knew the order was wrong, but I obeyed it. And what was the result? Just what I knew it would be. For the first few days the men were jolly; then they began dropping into my hospital. Those who had slight diarrhea had it assume a dysenteric character, with red tongues and feverishness; others came in with a low form of irritative nervous fever. I think in about two weeks I had nearly half the regiment at morning call complaining of one thing or another. I stopped the quinine and whiskey. Such practice is always an abuse of quinine.

Forty years ago somebody in a medical journal advised the giving of large doses of quinine, ten- and fifteen-grain doses, in the early stage of bilious fever, no matter how high the fever was. I tried it. It would break the fever in two or three days, but it did not cure the patients. They were longer getting well than those who received the ordinary treatment. It is an unsafe treatment, clearly an abuse of quinine.

Quinine in doses of ten, fifteen, or twenty grains has been recommended to reduce the temperature, and it will do it; but it is a harsh, unsafe treatment and wholly unnecessary, as we have other remedies which will accomplish the purpose and produce no perturbation or shock to the system.

J. T. STEWART, M.D.

PEORIA, ILL.

[While we cannot agree with Dr. Stewart in his views in every respect, we do agree with him in the belief that quinine is abused. —ED.]

Notes and Queries.

THE PHARMACOPŒIAL CONVENTION OF 1900.

To all whom it may concern:

In accordance with instructions given by resolutions passed at the National Convention for Revision of the Pharmacopœia of the United States of America, held in Washington, A.D. 1890, I herewith give notice that a General Convention for the Revision of the Pharmacopœia of the United States of America will be held in the City of Washington, D. C., beginning on the first Wednesday in May, 1900. It is requested that the several bodies represented in the Convention of 1880 and 1890, and also such other incorporated State Medical and Pharmaceutical Associations, and incorporated Colleges of Medicine and Pharmacy, as shall have been in continuous operation for at least five years immediately preceding this notice, shall each elect delegates, not exceeding three in number; and that the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Marine Hospital Service shall appoint, each, not exceeding three medical officers to attend the aforesaid Convention.

It is desired that the several medical and pharmaceutical bodies, and the Medical Departments of the Army, Navy, and Marine Hospital Service, shall transmit to me the names and residences of their respective delegates, so soon as said delegates shall have been appointed, so that a list of the delegates to the Convention may be published in accordance with the resolutions passed at the 1890 Convention for the Revision of the Pharmacopœia, in the newspapers and medical journals in the month of March, 1900.

Finally, it is further requested that the several medical and pharmaceutical bodies concerned, as well as the Medical Departments of the Army, Navy, and Marine Hospital Service, shall submit the present Pharmacopœia to a careful revision, and that their delegates shall transmit the result of their labors to Dr. Frederick A. Castle, 51 West 58th Street, New York City, Secretary of the Committee of Revision and Publication of the U. S. Pharmacopœia, at least three months before May 2, 1900, the date fixed for the meeting of the Convention.

H. C. WOOD,

President of the National Convention for Revising the U. S. Pharmacopœia, held in Washington, D. C., A.D. 1890.

PHILADELPHIA, PA., May 1, 1899.

—THE—

Therapeutic Gazette.

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Original Communications.

TREATMENT OF CARDIAC ASTHENIA OF PNEUMONIA.

BY HENRY L. ELSNER, M.D., SYRACUSE, N. Y.,
Professor of the Science and Art of Medicine and Clinical Medicine in the College of Medicine, Syracuse University.

The treatment of the so-called cardiac asthenia of pneumonia has been exceedingly discouraging to the profession. The sudden and overwhelming toxemia has often staggered the therapeutist because of his weakness to cope with it. A persistence in the methods of treatment which have become time-honored and routine has done much to rob the patient of the resistance which is absolutely needed to combat successfully a poison at once malignant and destructive.

To prevent the onset of circulatory embarrassment and to relieve this condition when present in acute pneumonia requires the breaking away from the empirical practices of the past and the acceptance, as indications for treatment, of the conditions which clinical and bacteriological experiences have made positive after faithful observation and experiment.

I fear that we have too long limited ourselves to the consideration of the heart alone when administering to our pneumonic patients, disregarding entirely the condition

of the peripheral vessels, particularly the arteries.

Riegel* long since demonstrated by sphygmographic tracings that most infections are associated with reduced arterial tension; Rosenbach† emphasizes the importance of the vasomotors in experimentally induced infectious endocarditis; and Buchard‡ at the Tenth International Congress dilated on the baneful influences of bacterial poisoning on the vasodilating centers. It remained, however, for Romberg§ to make a series of experiments and to associate these with clinical data. These have done much to place the treatment of the circulatory failure in pneumonia upon a scientific basis. In the *Berliner Klinische Wochenschrift* he reports a series of convincing experiments with the bacilli pyocyaneus and the pneumococci of Frankel, made for the purpose of determining the relative importance of the heart and the vasomotor system in the production of the circulatory failure in these infections. He concluded that the circulatory symptoms, which we have considered to be due entirely to heart weakness, are, in truth, intimately associated with demonstrable change in the vasomotors. A literal translation of his concluding sentence would read as follows: "We must consider with the heart weakness the weakness of the vasomotors, and with the cardiac paralysis that of the vasomotors also." Later, in 1896, before the Fourteenth Congress for Internal Medicine, and at the meeting of the German naturalists and physicians in Lubeck, Passler and Romberg‖ reported a series of experiments which serve to prove the relative importance in the production of the so-called heart weakness in pneumonia, of the heart itself, and of the vasomotor system.

Animals were inoculated with the pneumococci and the change in arterial tension carefully measured. To give the many experiments in detail would be tedious; but these were decisive. The experiments made with the pneumococci and the bacillus pyocyaneus, in which rabbits were inoculated, proved conclusively that the vasomotors were weakened and showed evidences of paralysis. These experiments were carried to a logical conclusion after many days of painstaking work, and as the result we are to day in a position to teach that the toxins exert their baneful influences upon the vasomotor centers in the cord.

These observers, in the report just mentioned, speak of the behavior of the heart as branding the infections experimentally produced. In pneumonia, for a time, the arterial tension is kept up to the necessary height by what they call an excited heart action. Infection with the pyocyaneus bacillus proved that the heart action was seriously retarded. Both these observers and all who worked with them, including Bruhns, agree that the circulatory disturbance found in the vasomotor system was due to the effect of the toxins on the vasomotor centers in the cord, and was of far greater import than was the condition of the heart.

In this country Van Santvoord* has done excellent work in this same field. Sphygmographic tracings were taken in eighteen cases of pneumonia, and these seemed to confirm the conclusions of the German observers. While the experiments to which I have thus fully referred establish the great importance of the vasomotor system, more particularly the vasomotor centers in the cord in pneumonic toxemia, the practical clinician will always, in formulating a rational treatment of the changed circulatory conditions, keep before his mental vision the association of an enfeebled heart with dilated peripheral vessels.

Primarily we are dealing with a toxemia. This leads to the cardiac asthenia, in which we are likely to have not only marked changes in the right half of the heart, but far-reaching degenerative changes in the muscle, heart clots, and vasomotor paralysis. To this must be added the obstruction in the pulmonary circuit. Fortunately the toxemia is short-lived, but its effect on heart and vessels is malignant, and when these suffer the treatment must be radical, prompt, and sustaining.

I must still further preface what I shall have to say on the subject of treatment by remonstrating with all my force against the indiscriminate use of such remedies as lower the vitality of these patients while they reduce temperature. All antipyretics, except

*Riegel: *Volkmann's Klinische Vortrage*, Nos. 144-145, Über die Bedeutung der Pulsuntersuchung.

†Rosenbach: *Arch. für Exp. Path.*, Bd. ix.

‡Buchard: Tenth International Congress, vol. i, p. 59.

§Romberg: *Berl. Klin. Woch.*, Nos. 51-52, 1895.

‖Passler and Romberg: *Berl. Klin. Woch.*, April 27, 1896, p. 382; Fourteenth Congress Internal Medicine.

*Van Santvoord: *New York Medical Journal*, 1898, lxviii, pp. 521-525.

cold, which suddenly depress temperature do so at the expense of vital force, and are apt to rob the patient of needed resistance, or they may cause fatal and sudden collapse. Give nothing which at any time in the course of the disease acts as a cardiac depressant. Let your treatment from the beginning be tonic.

I quite agree with Von Jaksch* when he says "the coal-tar antipyretics from antipyrin to lactophenin have their value, but not as antipyretics in the true sense, but as nervines." He says "these are indispensable." This latter statement the experience of the American physician contradicts absolutely. The indiscriminate use of nitroglycerin is a growing evil with the profession of this country. If we have in pneumonia lowered arterial tension from paralysis of the vasomotors, why give a drug which increases that condition? No one denies the paralyzing effect of this drug on the vasomotor system.

It has been demonstrated also that the vagus is paralyzed; thus inhibition is removed from the heart by large doses of the drug, and it is assumed still further by Brunton that the blood loses its power of absorbing and conveying oxygen. These are the conditions which we must seek to prevent.

The writer has frequently seen patients who have been treated with some one of the numerous cardiac tonic tablets which we now find in profusion on the market—all of them containing nitroglycerin with digitalis and a variety of other so-called heart tonics —develop the most alarming symptoms of cardiac and respiratory insufficiency, with rapidly lowering arterial tension, and to whom the firm believers in nitroglycerin have, with renewed energy, given increasing doses of the drug, only to aggravate the symptoms and produce paralysis.

Nitroglycerin may have its uses in overcoming peripheral obstruction where the arteries are tense, sclerotic, or narrowed, against which the heart is laboring. This condition occasionally presents with pneumonia in elderly subjects, and may be associated with interstitial nephritis. My experience with these cases has been very unfortunate. With slight change in arterial pressure reduced by the drug and a slow pulse I have been unable to control the heart; tachycardia finally followed, and the patients died.

But in pneumonia, where we already have paralysis of the vasomotors, it would seem from the experience of the past that nitroglycerin is a dangerous drug, in spite of the fact that one or two authorities of note have recommended it in this condition to relieve the overtaxed and dilated right heart; a condition which it would be far better to relieve by venesection, if all other methods fail, than by the use of a drug which causes still further paralysis.

I have looked into this subject very carefully and fail to find any authority founded upon physiologic experiment which justifies the use of nitroglycerin as it is to day used by many without an appreciation of one or more of the factors which underlie and aggravate the obstructed circulation.

Van Santvoord* in his paper pictures a series of convincing tracings taken from a patient during the acute stage of the disease, "one taken during convalescence, and one a few moments after the latter, when the circulation was under the influence of a very large dose of nitroglycerin." It is difficult to differentiate the first from the last, so similar are they.

A recent experience with a young physician would have been amusing had it not been pathetic at the same time. He had been taught to bleed his patients "into their own veins" by the use of veratrum viride. The patient was a man whom I had treated for myocardial degeneration, and who fell into the hands of the young practitioner suffering from acute pneumonia. I saw him on the seventh day. The physician expressed himself as anxious to have me see his patient, because he wished to be assured that his treatment was all that could be desired. For seven days this unfortunate victim had received one drop of the strong tincture every hour, and when I saw him *in extremis*, blue from carbonic acid poisoning, he was still receiving what the young doctor had been taught to consider his concealed lancet.

How many physicians have been misguided and how many lives have been lost from the persistent use of this cardiac depressant it would be difficult to compute. I never saw a case of pneumonia recover which had been rigorously treated with this drug.

The secret of success must be found in the use of such methods as will restore or sustain cardiac strength and arterial tone. There are two drugs which, when properly adminis-

*Von Jaksch: *Berl. Klin. Woch.*, 1896, p. 363.

*Van Santvoord: *loc. cit.*, p. 525.

tered, meet the indications presented by the circulatory changes of pneumonia due to paralysis of the vasomotor centers and the dilated condition of the arteries. These are strychnine and digitalis. This statement is not new to the profession, and I will occupy no time in emphasizing it.

I wish, however, to insist upon the administration of these drugs hypodermically. The results are more certain and more prompt. The strychnine may be administered in comparatively large doses while the patient is being watched by skilled attendants. Digitalin may take the place of digitalis. With the large doses of digitalis as recommended by Petresco* I have had no experience. How are we to treat the resulting cardiac insufficiency? By sustaining the heart and vessels without causing unnecessary wear or tear during these hours of imminent danger. To bring to your notice my method of accomplishing this end is the object of this paper.

The profession has long since learned the value of the diffusible stimulants. Unfortunately their effect is evanescent; hence my plan of treatment includes the administration of these at very short intervals during the continuance of cardiac asthenia. The stimulating effect must be continuous during the critical period. The remedy must be renewed before the preceding dose has lost its effect. In no other way can we accomplish the desired result.

During the past I have treated this condition by administering, every fifteen minutes, fifteen drops each of the compound spirits of ether, aromatic spirits of ammonia, the compound spirits of lavender, and the tincture of valerian. This is kept up day and night until the pulse shows improved tone and the heart action is decidedly better. The valerian is added because of its quieting effect when administered in these small doses with the diffusible stimulants. Occasionally we meet patients who have been unable to retain the mixture when it contained valerian, hence we have been forced to omit it and to substitute either pure whiskey or brandy in corresponding doses. If the Hoffman's anodyne is distasteful, it has been omitted and the dose of the ammonia and lavender has been doubled. The frequent administration of the compound has not seemed to annoy the patients, for, as a rule, they are not awake longer than is necessary to swallow the remedy. I have further insisted upon the internal administration every two, three, or four hours, according to the urgency of the symptoms, of .015 gramme (one-quarter grain) doses of sparteine sulphate with from .24 to .36 gramme (4 to 6 grains) of caffeine. Both of these drugs must be administered in larger doses than are usually prescribed if desirable results are to be obtained.

Finally, the alcoholic stimulant upon which I depend is Tokay wine. I know of no stimulant with which I have accomplished so much, and which in my hands has saved so many patients, as this Hungarian wine. This is administered in tablespoonful doses every half-hour, and is given with the ethereal stimulant when due. Occasionally it is necessary to use high rectal injections of coffee and whiskey and hypodermic injections of ether and oil during periods of collapse. The administration of the diffusible stimulants as above recommended, with the numerous other remedies suggested, perhaps appears to border upon polypharmacy. To this charge I plead guilty, but in extenuation would say that we are dealing with a condition of extreme danger, one which must be met by rigorous and continuous medication. The remedies are not antagonistic.

Because of these facts, we must be ready to supply the remedy anew before the heart and arteries have again lapsed into a condition which, if allowed to continue, will favor the formation of heart-clot, pulmonary edema, and carbonic acid poisoning.

In connection with this subject I hardly know what to say of the use of oxygen. In hospital and private practice we have learned to use it in a sort of routine fashion. Whether it is really productive of great good remains an unsettled question.

There is an unfortunate class of cases in which we find marked heart weakness very early, with pulmonary edema and a very profound congestion which seems to flood the lungs with a bloody serum. These patients often die during the first thirty-six hours in spite of any known treatment.

The treatment to which I have referred cannot be carried out without skilled and faithful nurses. My experience with this method has been satisfactory to me and gratifying to my colleagues on the hospital staff, as well as in consultation practice. Patients have been saved in whom the condition hardly appeared to justify the great labor of carrying out the treatment.

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* Petresco: *Therapeutische Monatshefte*, February, 1891.

*A REPORT OF TWO CASES OF LAPAROTOMY FOR PERFORATION IN TYPHOID FEVER.**

By William J. Taylor, M.D., Philadelphia,
Attending Surgeon to St. Agnes' Hospital and to the Orthopedic Hospital and Infirmary for Nervous Diseases.

The subject of operative interference in cases of perforation of the bowel in typhoid fever is of such importance that I make no apology in bringing before you this evening the report of two laparotomies performed for this condition during the past few weeks, at St. Agnes' Hospital. Unfortunately, death occurred in both instances, but in view of the very fatal results in these cases if left to themselves, I feel that the attempt to benefit them was not only perfectly justifiable but imperatively demanded.

Laparotomies for intestinal perforation in typhoid fever have, of late, been very thoroughly discussed in Dr. Keen's work on "The Surgical Complications and Sequels of Typhoid Fever," by Finney in the *Annals of Surgery*, 1897, vol. xxv, p. 233, and by Cushing in the *Johns Hopkins Hospital Bulletin*, No. 92, for November, 1898; and I will, therefore, attempt little more than to give the histories of these two additional cases and a few conclusions that seem to me worth emphasizing. In all instances where perforation has occurred, the patients were already seriously ill from the disease, and we could, therefore, hardly expect a low mortality, especially where the additional element of an infective peritonitis is considered. Cushing states that in thirty autopsies held in fatal cases of typhoid fever at the Military Hospital at Fort McPherson, perforation was found to have caused death in six instances, one of these being of the appendix. This would attribute to perforation twenty per cent of all deaths, and as according to the latest German statistics (Gesselewitsch and Wanach, quoted by Cushing) ten per cent of the entire number of fatalities in typhoid fever are due to perforative peritonitis, its consequences need not be emphasized.

Cushing states that there were probably 2000 deaths from typhoid fever in the field hospitals and elsewhere during the late Spanish-American war, and if we accept these latest statistics as correct ten per cent, or about 200 of these deaths, were from perforation of the bowel and the resulting septic peritonitis. He stated he did not know of a single instance where operation for relief of the perforation was resorted to, but Dr. De Forest Willard at the December meeting of the Philadelphia Academy of Surgery reported a case of a soldier at the Presbyterian Hospital, upon whom he operated in October last. Dr. Nicholas Senn (Cushing) stated that although he saw hundreds of cases of typhoid fever during his military service, he was only called upon once to operate for perforation, and as the patient was moribund at the time, he refused to do so. Certainly very many of these cases should have been subjected to operation and an attempt made to save their lives. With Finney's statistics before us of fifty-two cases of perforation of the bowel in which operation was done with seventeen recoveries, or 32.68 per cent, and which on revision by eliminating all possible sources of error in diagnosis makes a total of forty-seven cases and thirteen recoveries, or 27.68 per cent, and Dr. Keen's table of eighty-three cases and sixteen recoveries, or 19.36 per cent, we should urge the necessity for operation, especially when the known mortality without operation is about ninety-five per cent. Many of the reported cases of perforation of the intestine in this disease which have recovered without operation are probably due to the occurrence of a perforative appendicitis in the course of the fever, for if there be a perforation of the appendix the ulcerative process may be slow, thus giving sufficient time for the walling off by adhesive lymph from the general peritoneal cavity and the formation of a circumscribed abscess, as we sometimes see in ordinary appendicitis.

In two instances which have come under my own observation, postcæcal abscesses formed and worked their way into the right flank, where they were opened and drained, the patients making ultimately good recoveries. In one of these cases the diagnosis of typhoid fever was unmistakable; the patient was under the care of Dr. H. A. Hare, and I had the good fortune to assist Dr. Keen in the operation. In the other case, a young girl at St. Agnes' Hospital, the diagnosis was probable but not positive.

General septic peritonitis has necessarily a high mortality, and it is only by a very early recognition of the occurrence of perforation and immediate operation that we have any chance of success. Cushing lays down the rule, which is certainly well worthy of consideration, that "any abdominal symptoms

* Read at a meeting of the College of Physicians, April 3, 1899.

occurring in the course of the fever are as urgent an indication for surgical consultation as is the appearance of pain and tenderness in the right iliac fossa under all occasions, and that only when this is fully realized will the mortality of these cases approach the low percentage reached in operations for acute perforative appendicitis or perforating gunshot wounds of the abdomen."

I believe, to be successful, the abdomen should be opened at the earliest possible moment after the diagnosis is made, and that no delay whatever should be permitted for reaction or, indeed, for any purpose whatever. In these cases which I report to-night the abdomen was opened within four hours in the first instance, and within two hours in the second, and in both instances a general septic peritonitis was present. The most important point in my estimation is that of diagnosis, and I hope very much to hear from the physicians present concerning it.

Can a diagnosis be made sufficiently early to warrant operation before a general septic peritonitis has developed—that is, in the preperforative stage?

Do recoveries ever take place after perforation of the bowel has occurred, without operation? Fitz remarks: "Since perforation of the intestine in typhoid fever may take place without any suggestive symptoms, and since suggestive, even so called characteristic, symptoms may occur without any perforation having taken place, it must be admitted that recovery from such symptoms is no satisfactory evidence of recovery from perforation."

The symptoms usually given as denoting perforation are sudden and severe abdominal pain, persisting with increasing intensity (in one of my own cases there was severe pain for a week, and in the other for several days, before the perforation occurred), with nausea and vomiting, and a sudden fall in temperature; but in one of Cushing's cases the temperature was 105° F. at the time of operation, and the pulse was 170. This patient complained of severe abdominal pain and general tenderness, somewhat more marked on the right side, was restless, with pinched expression, while his color was cyanotic, the lips blue, and his extremities blue and cold.

The absence of liver dulness is not a physical sign of special value. In my first case the liver dulness was absent, as there was great tympanites, but in my second case this dulness was present. Finney mentions this absence of dulness as being noted in only five out of thirty-five cases.

Marked rigidity of the abdominal wall, a board-like condition as it is frequently described, is certainly characteristic of serious intra-abdominal inflammation, and I consider it of great importance in aiding us to decide upon operative interference.

All of these symptoms are those of beginning septic peritonitis, and show a very alarming physical condition, with the depression consequent upon a violent bacterial poisoning. The possibility of a condition of preperforative stage of ulceration undoubtedly exists, with a localized area of inflammation of the serosa, either with or without the passage through the intestinal wall of microorganisms. This is exactly similar to the preperforative stage of appendicitis and is indeed more serious, as the ileum is freely movable and less likely to form adhesions to other tissues and the formation of a circumscribed abscess. In my second case there was a mass of lymph almost surrounding the perforation in the ileum and firmly attached to the serous coat of the bowel, evidently an attempt, but without success, to wall off the perforation. In one of Cushing's cases this preperforative stage was recognized and the operation done, with the satisfactory result of saving life. It may be that adhesions take place between the omentum and the bowel, as has at times been reported, but this is so theoretical that it cannot be considered as a practical possibility; although, as is shown in the specimen which Dr. Miller has brought here to-night, a perforation may occur and be closed by an omental adhesion. Fatal septic peritonitis may be present without perforation, as had been demonstrated in numerous cases, but we all know a septic peritonitis without operation and drainage is terribly fatal, and this possibility should urge us more strongly to operate in all cases where it is suspected.

Case I.—A man, aged thirty-four years, was admitted to St. Agnes' Hospital, March 3, 1899, suffering with typhoid fever. He had been sick for some time, and it was difficult to fix the exact date of the disease, but presumably it began about the 22d of February. He had been under the care of Dr. Stevens, and his condition had grown steadily worse, having had a hemorrhage of the bowel the day before; the pulse was poor and tympany increased. March 8, about the eighteenth day of the disease, between eleven and twelve, he had all the symptoms of perforation of the bowel, with vomiting, and a drop in temperature from 102⅘° F. to normal.

Dr. Stevens saw him shortly after twelve o'clock and advised that he be turned over to me for operation. I did not see him until three o'clock, and found him with a greatly distended belly, short respirations, pulse almost imperceptible, and finger-nails and lips rather blue. He had horrible pain, which was especially severe over the right side of the abdomen; his whole condition was one of profound poisoning. The only possible chance of saving his life being an abdominal section, I laid the matter before his mother and sisters, telling them I considered his chances for life without operation absolutely *nil*, while with operation there was a chance, but a very slim one, that he would recover, and that I considered it my duty to give him that one chance. They accepted the proposition and told me to use my own judgment. All preparations were made for a rapid laparotomy. Ether was then administered, and in the course of a few minutes, after some struggling, his respirations became easier and his pulse fuller in volume, so that it could readily be counted. As soon as he was narcotized I rapidly opened the abdomen, and typhoid feces spurted out at least twelve inches. I quickly enlarged the incisions, pulled out the small intestine, rapidly passing down to within about ten inches of the ileocæcal valve, when I found a perforation of the gut through an ulcer which would admit the end of an ordinary lead-pencil. All round this ulcer the tissues were thickened and congested, and his condition by this time was so threatening that the ulcer was simply invaginated and the peritoneal coating closed over it, with two layers of sutures of fine silk. The abdomen was then washed out with sterile salt solution, and some stitches of silkworm-gut introduced into the belly wall. Before, however, all these latter were in place, death occurred.

From the size of the opening in the gut and the mass of fecal matter in the belly, it does not seem possible that an earlier operation would have had any effect, unless it had been possible to have recognized the preperforative stage, and by operation have anticipated the violent septic peritonitis. The whole time occupied in the operation from the beginning of etherization until the completion of the operation was just twenty minutes, and it must have taken at least eight minutes, if not ten, in the etherization before the abdomen was opened.

Case II.—A man, aged forty-seven years, was admitted to St. Agnes' Hospital March 16, 1899, having been ill with typhoid fever ten days, and for several days he had had severe abdominal pain, but no hemorrhage. On March 28, the twenty-fourth day of the disease, at 11 45 at night, the nurse discovered that his temperature had suddenly fallen from considerably over 103° to below normal; he complained of an intense pain in his abdomen, had vomited, and his condition was poor, but there was little evidence of shock. The resident physician saw him within fifteen minutes and diagnosed a perforation of the bowel. I saw him about twenty minutes past one, an hour and a half having therefore elapsed since the time of perforation. His temperature was then normal, his respirations rapid, pulse very rapid but of fair volume. He had been delirious for days and his abdomen was tympanitic, but not very much distended; there was great pain on pressure, and even a slight touch would rouse him from his stupor and cause him to complain. Liver dulness was present. The abdominal muscles were absolutely board-like. From the sudden and rapid fall of temperature, the vomiting, the great pain, and the board-like condition of the abdominal wall, I felt sure that there was an intestinal perforation. He was therefore given ether, the abdomen was rapidly opened, and as soon as the incision was made into the peritoneum gas escaped, but no fecal matter, only a thin serous fluid. The intestines were very much distended and popped out of the wound; they were caught, drawn outside, and a rapid search of the small intestine made down in the direction of the cæcum, where a small perforation was plainly seen in the ileum, about eight inches from the cæcum. This opening was not larger than the head of a small pin, and gas escaped, but apparently no fecal matter. There was a marked general peritonitis and about the perforation there was evidence of the deposit of lymph. The whole peritoneal cavity was filled with colorless fluid, evidently the result of intense congestion. The small intestine was in very good condition. There was no pus, marked ulceration, or thickening, except about the point of perforation. The ulcer was invaginated, two rows of silk sutures rapidly placed in position, and the abdomen washed out with normal salt solution; drainage was introduced and the wound closed by through-and-through silkworm sutures. His condition throughout the operation was without change, his pulse remaining good and his respirations somewhat easier after the belly was opened. He passed a

very fair night, his temperature in the morning being 102°, the pulse fair, and on the whole his condition was not materially changed by the operation. Death occurred in twenty-one hours from septic peritonitis.

I believe that cases of typhoid with pronounced abdominal symptoms should be looked upon as nearing the preperforative stage, and more especially all cases in which hemorrhage of the bowel has been noted, for without ulceration the possibility of severe hemorrhage is difficult to understand. Osler states that death occurs in from thirty to fifty per cent of all cases of hemorrhage of the bowel. I should much prefer to open a few abdomens without finding true perforation of the bowel, if I could discover evidence of deep ulceration of the intestinal wall, as it would give an opportunity for reenforcing the weakened wall of the gut by proper suturing, and providing free drainage for commencing general peritonitis.

The danger from operation in these cases is undoubtedly great, and when the shock is very profound may sometimes hasten by a few hours the fatal issue; but I do not believe it wise to wait for reaction, as Dr. Keen suggests, for the shock and lowered temperature is due to the large amount of septic material in the abdominal cavity and to the resultant purulent peritonitis, and not to the shock of the perforation of the bowel. The fact that the greatest number of recoveries occurred (see Dr. Keen's tables) when the operations have been performed within the second twelve hours only carries out this contention; they are, as a rule, the cases where the perforation is small and the onset of the peritonitis slow. Our chances of success are in inverse ratio to the size of the opening in the gut, for the smaller the perforation the slower the extravasation of the contents of the bowel, and, necessarily, the milder the type of infection and degree of shock; while on the other hand, the greater the fall of temperature, the greater the degree of shock and general constitutional depression, the larger the opening, and the more overwhelming the septic infection. In these latter cases I fear our results will always be most disappointing, and it is only by an endeavor to anticipate, to form our diagnosis in the preperforative stage, and to operate early, that we can hope for success.

There are very few of us who would wait for reaction before operating upon a case of acute perforative appendicitis with general septic peritonitis, for if we wait for reaction our patients will have passed beyond the point when they can be benefited; and, indeed, many surgeons now decline to operate at all in these cases. I admit the prognosis in all cases of septic peritonitis is very bad, but I have seen some few patients absolutely snatched from the grave by freely opening the abdomen and draining its septic contents.

Typhoid patients have a wonderful amount of vitality and stand operative interference and many surgical complications remarkably well, providing you can eliminate the overwhelming depression of a septic peritonitis.

I believe that in careful and repeated examinations of the blood in all cases of typhoid fever with severe abdominal symptoms, and indeed, if it be possible, in all cases of the disease, we will find a very valuable aid in arriving at a correct diagnosis, and it will enable us frequently to operate much earlier than we otherwise would possibly feel justified in doing. Cabot (Clinical Examination of the Blood) and Thayer (Johns Hopkins Hospital Reports, vol. iv, No. 1, p. 83) have demonstrated that during the fever there is a tendency for the number of white corpuscles to diminish, and with the onset of any acute inflammatory process the number of white corpuscles is largely and suddenly increased.

Cushing has shown in two of his cases that there may even be a diminution in the number of leucocytes in the blood after the onset of peritonitis, when there is a large outpouring of leucocytes into the abdominal cavity; and, at first, this might seem to destroy this means as an aid to diagnosis. If, however, the blood be carefully examined and a marked and sudden leucocytosis demonstrated, corresponding to the increase in abdominal pain, and which again abruptly diminishes, we should at least suspect perforative and septic peritonitis.

I would here quote Finney's conclusions as thoroughly expressing my own belief: First, of all the so-called diagnostic signs of perforating typhoid ulcer, most reliance is to be placed upon the development of an attack of severe, continued abdominal pain, coupled with nausea and vomiting, and at the same time a marked increase in the number of white blood-corpuscles; secondly, the surgical is the only rational treatment of perforating typhoid ulcer; thirdly, there is no contraindication to the operation, surgically speaking, save a moribund condition of the patient.

I would therefore urge most strongly that all cases of even suspected perforation with great abdominal pain, if accompanied by a

marked increase in the number of white blood-corpuscles, be subjected to an abdominal section, that a rapid search be made for a perforation in the last two feet of the ileum, the appendix inspected, as well as the cæcum, and if no opening is discovered, an examination made of the sigmoid flexure of the colon. Any especially inflamed spots should be covered in by stitching the sound serous coating over them.

Cushing has shown how necessary this is in the report of his case, where the abdomen was opened three times, first for perforation, secondly for strangulation by a band of adhesions, and thirdly for a second perforation of the bowel and fecal extravasation.

Unquestionably a number of cases will be operated upon, if this plan is pursued, without any perforation being discovered, but if drainage be practiced we will of necessity save many lives which would otherwise be sacrificed.

The vast majority of cases of suspected perforation submitted to operation where no opening in the gut has been found have recovered promptly from the surgical interference, and in some instances at least with apparent beneficial effect upon the course of the disease.

Welch, of Johns Hopkins, has shown that it is quite possible for microorganisms to pass under certain conditions through the inflamed wall of the gut without there being any true perforation, and bearing this in mind, we should always drain the abdomen.

I shall not go into the question of the technique of the operation, for with this we are all familiar in our work on the appendix, but to insist upon the necessity for the utmost speed consistent with thorough work. The incision should be made to the right of the median line, as by far the greatest number of perforations are found in the lower end of the ileum, and, if there be need, a second opening made on the other side of the abdomen, if free drainage cannot otherwise be secured.

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*THE EVOLUTION OF MODERN THERAPY.**

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What is the status of therapeutics to-day? How does it compare with that of the past? What lessons may we gather from the contemplation of its history; what deductions for our individual and collective betterment, from a retrospective analysis of the therapeutic aims of our predecessors?

As brothers let us consider this vital subject in our family circle. I propose to offer you a brief outline of the therapy of the past in order to show that despite the emancipation of medical men from the iron rule of leaders of schools and systems, we are still far from the golden truth in therapeutics. How may a better therapy be evolved?

In the days of Hippocrates, Galen, and their successors, these great leaders attempted to guide the physician through the mazes of doubt and mysticism, their own intellects darkened by ignorance of anatomy and physiology—the blind indeed leading the blind! Is it surprising that they groped amid the problems of life, disease, and death without reaching their solution, when we, whose paths are illumined by the brilliant discoveries of a Harvey, a Claude Bernard, a Bichat, a Darwin, a Huxley, a Virchow, a Pasteur, and their followers and colaborers, are still so far from the key to the cure of disease?

"Life is short, art is long, opportunity fleeting, experiment dangerous, judgment difficult," has been well said by that grandest of medical intellects, the father of medicine. Read his works to-day and you will find that despite the dense pall of ignorance which oppressed and often misguided him, he divined the true aim of therapeutics. I propose to show you that modern therapeutics only attains perfection when it approaches most nearly to the teachings of Hippocrates. True, the golden grain of rationalism was buried deep amid the fallacies and traditions of his day, and obscured by crude conceptions of the structure and functions of the human organism. But if he had done nothing more than discover that pithily expressed attribute of the diseased human organism, "*vis medicatrix naturæ*," his name would deserve to be immortalized, for these three words are the still small voice which has brought his empiricism- and ignorance-sodden followers, in all epochs of medical history down to the present time, back to the true aim of healing. Although he regarded venesection as necessary, Hippocrates warned against excesses, because he deemed it a highly debilitating measure to be applied with the greatest caution, and one which should be almost forbidden in weak per-

*Address before the Society of the Alumni of the Medical College of Virginia.

sons, children, old people, and pregnant women. With therapeutic intuition he regarded inflammation and fever as manifestations of the conservative tendencies of the organism against which so heroic a measure was likely to react unfavorably. Although he bled freely in inflammatory conditions, he constantly cautioned the wisest care and attention to the condition of the patient's strength and vitality, his aim being "to relieve pain, moderate perturbed febrile movement, and promote crisis." For this reason he preferred local bloodletting. His plan of treating disease was cautiously watchful of the indications of nature (φυσιν), by which he meant the organism. In his work on epidemics he writes: "We must do nothing foolishly bold, but be quiet and wait; if one does not help the sick, one at least does them no harm." In fevers he advised an abstemious diet, barley water, as a drink water and honey. Of medicines he used emetics, laxatives, and revulsives; radix hellebori, asses' milk, and juice of euphorbium. All his writings display an acuteness of perception which makes his observations valuable. The noble spirit which he sought to inculcate is evidenced by the Hippocratic oath, which commands the physician to live virtuously and piously and to preserve his art.

The enormous proportions which bloodletting assumed among many succeeding generations of physicians testify not only to the dominance of this remedial agent, but its rise and fall illustrate the varying conceptions of the aim of therapeutics which held sway at various times. I can therefore offer you no more striking illustration of these therapeutic conceptions than by briefly tracing the fate of this chiefest of so-called curative agents throughout medical history. The death of Hippocrates (366 years B. C.) resulted in more or less desuetude of his philosophical and rational teachings. Professing adherence to and extolling the latter, his scholars and their followers gradually swerved from the lines of strict bedside observation and deduction, which he had inculcated as the first duty of the physician. They attempted to construct systems of medicine by substituting their own speculations for the more simple methods of the Nestor, and thus they fell into false practices. There were a few exceptions among these impracticable men, who urged bloodletting and purgation in all diseases. Chrisippus and his pupil Erisistratus held boldly to the master's teachings and insisted that spoliative methods were contrary to nature. Indeed, few physicians at the present day excel Erisistratus in the wise ordering of abstention, baths, enemata, and other harmless therapeutic measures. Phillipus of Cos and Serapion (260 B.C.) formed the empirical school, based upon the pure Hippocratic doctrines. They cast aside all dogma and hypothesis, and depended solely upon bedside observation. They were extremely cautious with venesection, and regarded plethora and retained excretions as the principal etiological factors. They depended chiefly upon enemata and laxatives, and resorted to bleeding only when these failed, avoiding it always in chronic cases.

When the exponents of this sensible practice passed away, their pretended followers deviated from their teachings and lapsed into the most crude empiricism. Medicine was rescued from the latter by Asclepiades,* who adopted as a motto of treatment *tuto cito et jucunde*, depending chiefly on diet, rubbing, exercise, rest, and bathing. By reason of his great popularity in Rome his propaganda for bathing in health and disease obtained enormous success.

Galen is a familiar name. Being a man of culture and possessing great oratorical powers, he so skilfully constructed a system of medicine by a conglomeration of all former doctrines and practices that it endured for thirteen centuries. His fantastic ideas of the residence of the cardinal powers of life in the heart, the brain, and liver, and his doctrine of the four temperaments based upon the predominance of mucus, blood, yellow and black bile, stamp him as an idealist. Still he insisted upon the Hippocratic doctrines, and by his remarkable cures he acquired enormous repute, which is evidenced by his becoming physician to the Emperor Marcus Aurelius. He advised bloodletting as the surest remedy in plethora, in chronic ailments due to suppressed hemorrhages, and as a prophylactic, but he warned against bleeding to syncope. Although he was an active bleeder, he cautioned against excessive depletion, urging that "loss of blood may become harmful, because the vital spirit flows

* This truly great physician and philosopher was the bosom friend of Cicero and a pupil of Democritus, who really foreshadowed the "cellular theory" by teaching contrary to the prevalent humoral theory, that "not the juices of the body but its elements and atoms are active in promoting health, and that their disturbance constituted disease." The intellectual preeminence of Asclepiades is attested by Pliny.

away with it and large losses must impair all the natural processes."

The first centuries of the Christian era, when science and art lay prostrate, constitute the darkest period of the history of medicine. Amid the darkness, and the excesses committed by the monks and others who arrogated to themselves the title physician, a few true medical spirits shone like gleams of promise.

Alexander of Tralles, living in the sixth century, though a follower of Galen, was courageous enough to oppose him by insisting that the physician should not follow any system of treatment, but that he should be guided in each case by the age, constitution, natural powers, and mode of life of the patient. Despite these sound views, bleeding was his chief remedy, though he cautioned against the excesses which he daily witnessed among the motley practitioners of his day.

The fifteenth century produced that erratic but clever reformer, Paracelsus, of whom the historian Ranke has said: "In him lived a spirit ingenious, profound, and endowed with rare knowledge." Although his vanity and bad habits made many enemies, and his alchemistic doctrines betray the spirit of ignorance which was the prevailing characteristic of his time, he displays true medical intuition in the earnestness with which he inveighed against Galen's doctrines and spoliative practices, and in his recognition of the authority of Hippocrates. He wrote: "When disease attacks the body, all the healthy organs must combat it, for disease tends to kill them all. Nature recognizes this fact, and therefore she attacks it with all her might." What Hippocrates called "*vis medicatrix naturæ*" Paracelsus termed "the inner alchemist." He proclaimed boldly: "Nature is the physician, not you! Since I saw that the doctrines of the ancients have accomplished nothing but the making of corpses, death, deformity, and decay, I was compelled to pursue the truth by another way." Whatever the failings of this man, be he charlatan or wiseacre, these ideas betray a realization of the aims of the true physician as we regard them to-day.

The same century produced Brissot, who with great learning and logical acumen inculcated that inflammation does not always demand venesection, because "the powers of nature, which always aid the diseased organism, may produce salutary congestion." He opposed general bleeding and preferred, like Hippocrates, local depletion. It is a sad commentary on the spirit of the medical profession of that day, and exemplifies the enormous prejudice in favor of bleeding, to record the fact that poor Brissot was not long permitted to sing the praises of "*vis medicatrix*." He was driven from Paris to Portugal, where he died a martyr to his excellent doctrines, amid the curses and maledictions of his *confrères*.

In every country bleeding, purging, and other spoliation continued the weapons with which disease was attacked.

A reformer appeared in the seventeenth century. Van Helmont sought to end the sad reign of spoliative therapy which had resulted from the perversion of the doctrines of Hippocrates during the dark ages. Despite his fantastic and mystical tendencies and practices, he was a brilliant physician, which is evidenced by the fact that even in that early time he laid special stress upon the fallacy of treating symptoms. "Diseases have no roots," he wrote; "their termination is based upon the removal of their causes; the aim of treatment should not be the *cooling of temperature* and removing the changable symptoms; the physician who directs his chief attention to these things and not to the removal of the cause, loses time, labor, and opportunity." He prescribed opium as a stimulant, and mercury, antimony, and wine in fevers. Against depletion he strove with might and main: "I estimate that indication most highly which is based upon the maintenance of the strength; venesection is directly opposed to the latter; the entire treatment should be for the maintenance of these powers. In fevers the indication for bleeding is absent. It is forbidden that he injure Nature, who should hasten to her aid when she tries to help herself. She can do this more perfectly the more vigorous she is. The physician should certainly know that without his interference the patient is debilitated enough by the disease, the loss of appetite, restlessness, pain, fear, wakefulness, and perspiration. By the rapid withdrawal of blood Nature is hindered in the destruction of her enemy. It is an insane practice to draw blood so frequently and at the same time offer the patient nourishment, regardless of the complete abeyance of his digestive powers."

To us of this enlightened era these views have the true ring; how singularly perverse was the medical mind in refusing to accept these salutary lessons! How steeped the medical profession was in its errors, and how

authority ridden, is sadly evident from the fact that Harvey, the discoverer of the circulation of the blood, was so persecuted by reason of his teachings that he lost his large practice in London, and his work, being refused censorship in England, was printed in Frankfort several years later (1628). In Paris his book was also prohibited.

It required a bold spirit indeed to antagonize the prevailing doctrines and the hapless therapy based upon them.

Now appeared upon the scene the famous Sylvius (1660), who taught Van Helmont's method in the University of Leyden. He added certain chemical doctrines which seem extremely absurd at the present time. He spared the patient's vitality by refraining from depletion, his chief remedies being simple diluents. His influence was good, but it did not seriously check the bloodthirsty doctrines. The discovery of the circulation of the blood even did not bring order out of the then prevailing therapeutic chaos. The circulation was regarded as a hydraulic process, and diseases were thought to be due to a despoiling of the blood, which could be remedied by bleeding and even by injecting medicinal agents or animal blood. The holocaust to venesection continued to accumulate, and the voices of the few great reformers were silenced amid the detractions of a multitude of despoilers.

In the latter part of the seventeenth century a brilliant star arose in the medical firmament. Thomas Sydenham strove to reinstate the lost doctrines of Hippocrates and relegate Nature to her merited position as a healer. A rational empiricism, a treatment free from speculation and based entirely upon observed facts, was his aim. Sydenham defined disease as "an effort of Nature to preserve the patient; this effort is manifested either by a purifying fever, the symptoms of which are the signs of Nature's battle, or by intestinal evacuation, sweating, or cutaneous eruptions. If Nature conquers the disease becomes acute; if not it becomes chronic." Although Sydenham, like Hippocrates, believed that it is the physician's duty to watch closely the processes of Nature in the furtherance of cure, he erred, like the great Nestor, in regarding high fever as an abnormal action, which must be modified by antiphlogistics, bleeding, purges, watery diet, and cool surroundings. He was a determined yet wary bleeder, always cautioning against excesses and deploring the therapeutic barrenness which forced him to resort to venesection, a remedy which he regarded as debilitating and destructive to the whole body. He said that "a regular system of management frequently cures many diseases better than the powder of the apothecary." He valued cinchona and opium highly. As a pupil of Locke and a student of the Montpelier school, which had served to maintain the rationalism of Hippocrates amid the chaotic confusion into which it had degenerated, he was a strict observer and insisted upon definite indications for all treatment.

Another evidence of returning good therapeutic sense is furnished by the life and teachings of one Gideon Harvey, a contemporary of Sydenham, who was physician to King Charles II. and William III., and city physician of London. He wrote a book in 1689 on "The Art of Curing Disease by Expectation," in which he violently assailed the prevailing spoliative methods. He may be regarded as the father of the expectant treatment, which came into vogue in the latter half of this century.

The enlargement of knowledge resulting from Harvey's great discovery and Sydenham's philosophic and yet practical teachings appear to have influenced therapeutics very little. We find in the writings of Pechlin (1700), who was a very conservative practitioner, the statement that spoliative methods continued in vogue in Europe and that especially in France bloodletting became a veritable fashion, against which the scathing satire of Moliere was as impotent as the eloquent warnings of the few rational physicians.

Even Boerhaave, who was justly regarded as the most celebrated physician in Europe, labored under the terrific error of spoliative therapy. Despite the fact that he recognized and warned against the devitalizing effect of depletion, he not only bled in most diseases, but recommended venesection to facilitate the absorption of medicines. He had a large following in all parts of the world. He wrote: "If we compare the good which half a dozen sons of Æsculapius have accomplished since the origin of the medical art upon the earth, with the evil which the immense mass of doctors have done among the human race, there can be no doubt that it would have been far better if there had never been a physician in the world." This sentiment, which was afterward wittily reiterated by our own Oliver Wendell Holmes, certainly reflects much truth, so far as internal medicine is concerned. The forlorn plight of therapeutics, its sad consequences for suffering humanity, cannot be depicted more eloquently

than by this statement of the foremost physician of Europe, who was himself so enamored of the spoliative practice which he condemns that he was utterly unconscious of his own participation in it.

After figuratively wading through tales of blood-spilling, the diligent student of medical history is refreshed by the clear and rational teachings of Friedrich Hoffman, in "*De naturæ et artis efficacia in medendo.*" Inveighing against the habit of being bled, because "in the blood is contained the entire stock of vitality," he recommends a simple therapy, consisting of bland diet, cool drinks, and baths, mineral waters, milk, wine, lead, camphor, iron; and opposes the use of opium and other poisons.

A staunch defender of Nature among the multitude of bleeders was Gaub, professor at Heidelberg, who wrote the first book on pathology. He regarded Nature amply competent to remove disease, which he considered quite as natural as life or death.

Stahl is another great man who left a favorable impress upon therapy. He wrote: "Nature, the physician of diseases, offers a better prospect of curing them than the most perfect apparatus of our art." He warned against too active medication and depletion, "which suppress the completely misunderstood efforts of Nature."

In France an outspoken opponent to depletion was Borden, who dubbed the Charité "the leech bureau." He lived in the latter half of the eighteenth century in Paris, when venesection was running riot. He disregarded plethora and valiantly defended Nature. Although he used the lancet, he warned against it in fever because "bleeding shatters the constitution and disturbs the function at a time when the organism requires all its vitality for the purpose of removing the disease." "Many a broken-down constitution," he writes, "is dragging itself around burthened with chronic disease as a result of disturbance and hindrance of Nature's work by bloodletting in acute diseases. In rheumatic and catarrhal diseases especially Nature is the sole curative factor."

While a reaction against depleting methods was brought about in France by the teachings of Borden, Castellot, and others, and by the conservative doctrines emanating from the great Montpelier school, the teachings and practice of Sydenham continued to be perverted by English physicians. Unfortunately many of them disregarded his warnings and blindly bled for all diseases.

The philosophic Cullen was an active bleeder, although, like Hippocrates, he warned against excesses; he laid down indications for drawing blood and prescribed tonics, stimulants, cinchona, wine, and opium.

Depletion still continued to sway the medical mind, however, until De Haen appeared in the latter part of the eighteenth century. A true exemplar of rational medicine, he taught that "Nature must not be disturbed by powerful medicines." He prescribed chiefly absolute diet, cooling drinks, and mild cathartics. De Haen is the founder of the Vienna school of medicine, which was destined with interruptions to endure to the present day. His beneficent teachings struck the first decided and lasting blow to spoliative methods, and gave birth to greater trust in the vital restorative powers than had ever before been embraced by medical men. Some of his immediate successors, like Stoll and Peter Frank, neglected his teaching, while his later offspring, Skoda, exaggerated it into a therapeutic nihilism. Gottlieb Vogel and Peter Frank, men of great renown, bled without stint, but warned the students against syncope, and taught that the organism should be allowed to retain sufficient vitality, so that "we may not murder with the cupping-glass those whom the disease had spared."

As an evidence that Vienna was still the center of spoliative therapeutics in the latter part of the seventeenth century, let me cite Wollstein, formerly a most zealous bleeder, who seeing the error of his ways, became a violent propogandist against venesection. He candidly admitted having nearly killed himself with it and having since his youth spilled thousands of pounds of blood. He writes: "I now look back with horror upon the twenty years of my bloody activity, by which health, animal nature, vitality, and its best weapon against disease—fever—were destroyed, a practice into which I had been decoyed by teachers and books. . . . . I know from my own experience no case in which bleeding deserves the name of a curative agent. Even in these troubles it helps only man; cattle and horses suffering in the same manner are not relieved by it. We should, we must, tremble in the application of an agent which makes weaklings of strong men and animals." Wollstein pointed out as no one before him, and until recently few succeeding him, have done, that the physician should not be deceived by occasional brief improvement of symptoms after venesection; he pleads for due regard of its evil after-

effects. "If the patient survives it, destruction of body and mind are the sad consequences which the doctor will observe after a cure by the cupping-glass." The courage of his convictions aroused this simple doctor to a valiant battle with prejudices and practices which were universal. His voice, however, was too feeble to stem the tide of blood surging around him. Antagonists arose on every side and counteracted his warning.

In the last years of the eighteenth century the medical philosopher Gall exercised a favorable influence upon his contemporaries. Recognizing the natural conservative activity of the organism, he endeavored to restore that simplicity in therapeutics which had been so long lost in practice, and to show the fallacy of the view that because Nature sometimes attempted to relieve by spontaneous bleeding from the nose, hemorrhoids, etc., diseases may be prevented or cured by removing a great deal of blood. Like Hippocrates, Gall regarded bloodletting as a devitalizing agent, which never weakened the disease, and only acted as a palliative by freeing the natural powers when plethora existed. He inveighed against these one-sided methods in acute diseases, which "by rough and forcible interference lowered the system," and warned earnestly against "those extravagant losses of blood which produce relapses and enfeeblement if they do not destroy life."

That the medical profession remained callous to the admonitions of these wise physicians is a deplorable fact, evident from the writings of that day.*

The close of the eighteenth century witnessed little abatement of spoliative therapeutics. With regard to medicinal agents it may be of interest to recall the fact that while in its earlier years many absurd remedies, like mummy, wood lice, dung, were regarded as efficacious, many medicinal agents were added which are of great value. Cinchona and opium were firmly established, despite violent opposition. Dover's powder was introduced; conium, stramonium, hyoscyamus, colchicum, were investigated by Stoerck, digitalis by Withering and Darwin, potassic solutions of arsenic by Fowler, acetate of lead by Goulard, corrosive sublimate by Van Swieten; oxygen was introduced for inhalation and mineral springs were studied; the external and internal use of water was introduced by Floyer in England, and by Friedrich Hoffman in Germany. The latter recommended cold baths "to restore elasticity to the solid parts." Hahn in Germany and Currie in England introduced the modern bath treatment of fever. Electricity was also introduced as a remedial agent.

The therapeutic attitude of the better class of medical men at the dawn of the nineteenth century is evident from the writings of Reil, who had distinguished himself by advocating the abolition of the medieval maltreatment of the insane: "Bloodletting is a very effective remedy, which alone is capable of saving life in some fevers and of paving the way in others. The untimely use of venesection is injurious; simple benign fevers do not require it, only the severe grades. Nature, not bleeding, removes fever. In inflammatory pneumonia a single bleeding restores expectoration, while excessive bleeding reduces the tone so that expectoration is absent and we are compelled to resort to senega, sulphur, etc. A bottle of porter often saves a patient who would have been killed by bleeding. Excessive and untimely bloodletting disturbs resolution, retards the crisis, slows convalescence, and sometimes produces effusions of lymph into the chest, with dropsy, suffocation, and apoplexy."

*A graphic picture of the practice at that time is furnished by Metzler, who "as the son of a country surgeon often saw in one day several hundred persons assemble for bloodletting, during the Easter holidays. Without any idea of medicine I was astounded by the indifference with which entirely healthy people, as well as those weakened by age or disease, allowed one or two pounds of blood to be taken, how one after the other dragged himself away faint and trying to refresh themselves by cold sprinkling of their faces, how they often made sport of persons lying in deathlike faints, and then seated themselves and allowed their blood to flow until they too grew weak and pale, often vomiting and sinking down exhausted. This silly action of the country folk astonished me, and this fearful effect of bleeding made a deep impression on my youthful mind. The correct ideas which I formed by reflection upon them were dissipated by the teachings of my professors at the medical schools. Fortunately I soon became convinced of the narrowness of the latter, how little I learned from them, and how much I still lacked in medical knowledge. I therefore studied the ancients, threw aside the laboriously learned school knowledge, and endeavored to gather all the Hippocratic teachings as my guide. Thus I became a physician; thus I obtained my conceptions of bloodletting and found myself more content at the bedside." He relates how his practice diminished because he refused to bleed pregnant women, drunken priests, and hypochondriacal politicians. He was dismissed from the practice of one convent because he advised exercise, abstinence from priestly labors and gormandizing instead of bleeding. "I only bled when it was in accord with my principles, and I have never had cause to regret this practice. I have published my views from time to time; they have been read from Slavonia to Paris. I have written of the beneficence of fever and against the thoughtless use of bleeding, and all those remedies which practitioners so constantly ply like a trade for the calming and suppression of febrile movements, which are so often useful."

Readers of medical history are familiar with the Bruonian System, promulgated by the brilliant Thomas Brown. His stimulating practice is said to have "slaughtered more human beings than the French Revolution and the wars of Napoleon." This extravagant charge is probably the anathema of his depleting contemporaries, proclaimed upon his revolutionary doctrines.*

In America the depleting practice was advocated by the well known Benjamin Rush. He recognized but two types of remedies, stimulants and depressants. He called calomel the Samson of the materia medica; his opponents contended that he was right, since it had undoubtedly slain its thousands (Roswell Park). In his treatise ("Upon the Advantages which Bloodletting Offers in Many Important Diseases") Rush proves himself a valiant and ardent defender of venesection, recommending it even in infants six weeks old and in the aged. The teachings of Rush dominated American medicine for many years, practically without opposition.

Throughout the entire world the battle between the depleting and conservative practice went on, the former always represented by the great mass of physicians, the latter espoused by a few isolated spirits who displayed laudable courage in thus opposing the popular destructive treatment of disease. Among the latter was at this time Ernst Horn, who wrote (1803) that "the waste of blood should be punished just like every poisoning; indeed, physicians who permit themselves to be deceived into bleeding by real or imaginary fulness of the pulse by increase of heat, stupor, delirium, etc., should be deprived of practice."

How the same fallacious theory may form the basis of opposite modes of practice is illustrated by that interesting but fatal method of treatment of the Italian teacher, Rasori, who had become a warm advocate of the Bruonian stimulant and contrastimulant theory. He differed from Brown materially in that he regarded the latter as far more frequently indicated than the former. In an epidemic of typhus at Genoa Brown's stimulating treatment was so destructive that Rasori afterward resorted to depleting measures in most cases. He not only used venesection freely in so-called sthenic cases, but he also applied it as a diagnostic feeler to ascertain whether to stimulate or depress. As if the hapless victims of this celebrated doctor were not yet miserable enough, he plied them with enormous doses of tartar emetic in pneumonia, which at that time prevailed extensively in Europe. A case of anasarca reported from the Genoa clinic received within fifteen days six venesections, of eighteen to twenty ounces, and forty-six ounces of saltpeter; a patient with pneumonia lost in eight days fifteen pounds of blood and received 220 grains of digitalis, after which he promptly died. Another case of elephantiasis received besides abundant venesection twenty-eight drachms of extract of aconite in gradually increasing doses.

It is a sad commentary upon the status of medicine in the early years of the present century to know that this destructive practice found a large following among European physicians, who modified it more or less. Disease continued to be attacked as an enemy hidden within the human body; the battle went on regardless of the injuries inflicted by the attacking forces.

Unhappily a brilliant clinician appeared at this juncture, whose contempt for the doctrine of Hippocrates acted as a blight upon rational therapy. Broussais, rhetorician, writer, theorist, sought to establish the so-called physiological school of medicine, a term as inappropriate as was his practice. He claimed that numerous post-mortem examinations showed that most diseases are due to local inflammation, chiefly of the gastrointestinal tract. In the effort to meet these, leeches were applied to a ludicrous extent. It has been stated that 400 leeches were used daily in each ward of the Hôtel Dieu, and that the Parisian hospitals consumed six million leeches annually.

You are doubtless familiar with the history of this remarkable practice, which must have cost many lives, because the influence of Broussais and his brilliant pupil Bouilland among the Latins was far-reaching.

Again a courageous dissenter appeared in the person of Andin-Rivière, who was professor of hygiene in the Lycée de Paris in 1827. A true follower of Hippocrates, he scourged with the lash of brilliant rhetoric, sustained by statistics and clear bedside observations, the outrageous practice of Broussais. He refers to a mild epidemic of smallpox in 1824, in which 1136 persons died, nine-tenths of whom were subjected to

* It is stated by Haeser that Marcus, a follower of Brown, "consumed in his hospital at Bamberg in one year, 1 drachm of opium, 195 grains of camphor, 529 grains cinchona, besides other medicines, for each of 367 patients." How well endowed this hospital must have been!

repeated bleedings. Dr. Frappart ordered for one patient 1800 leeches, under which the latter promptly died. These statements brought Rivière before the courts, which mulcted him in the sum of 500 francs damages and prohibited his book! During the reign of the bloodthirsty Moloch few dared to rebel against the scientific ministers of this healer (?). Rivière suffered for his temerity.

So great continued the influence of spoliative medicine that the renowned Laennec actually prescribed moderate venesection and large doses of tartar emetic in pneumonia, which proves that Laennec's therapeutic insight was not as deep as was his diagnostic skill. The latter is also evident from the fact that he attempted to create artificial sea air in the badly ventilated wards of his hospital, by scattering fresh seaweeds under the beds of his phthisical patients!

The time was now ripe for a reform! The great French school founded by Bichat gave birth to such men as Louis, Andral, and Magendie. These laid the foundation for exposing the fatal errors of Broussais and of his predecessors. Andral and Gavarret, whose blood studies were the pride of physiological text-books in my student days, opposed the spilling of blood and resorted to cathartics and emetics. Magendie, the father of modern physiology, exercised an enormous influence in favor of rational therapeutics. "Medicine," he wrote, "is nothing more than the physiology of the sick man. It is really depressing to examine the different remedies used in each disease. Let us examine how things are going in our Parisian clinics. Take a case of typhus. One practitioner treats it with purgatives, another with bleeding, a third with so-called tonics. Others, to which category I belong, allow the disease to go undisturbed through its various stages."

Nevertheless Magendie was not a therapeutic nihilist; for he investigated, with that acumen which has immortalized him, the various medicinal alkaloids, in order to obtain from animal experimentation positive results not to be obtained from crude drugs, thus conferring a lasting benefit, which we of the present day still enjoy. He assisted most efficiently in overthrowing the fatal doctrine of local phlogosis urged so brilliantly by Broussais, and he insisted that "the entire organism must be regarded in our treatment of disease. It must not be forgotten," said he, "that a pneumonia patient suffers from something else besides a diseased lung."

Louis, who sought to establish the numerical method for proving the value of remedies, published a work on pneumonia to prove the inutility of venesection, whether it was copious or moderate. "The result of my investigations," he writes, "upon venesection agrees so little with the universal opinion that I hesitate to publish it."

In England many eminent physicians gradually abandoned extreme spoliative methods in acute disease and adopted an entirely opposite treatment in chronic diseases, which they regarded as due to debility. Iron, cinchona, and other tonics were judiciously applied in connection with hygienic and dietetic measures. To the credit of English medicine be it said that the first work upon the hygienic treatment of chronic diseases was written by Sir James Clark ("On the Sanative Influence of Climate"). Thus the seed for more rational therapeutics was sown among the leading medical minds of England, while the ordinary practitioners still continued to bleed and purge and vomit their long-suffering patients.

While rational methods of treatment, based upon professedly exact pathological and chemical data, were promulgated by the greatest physicians of France and England, there appeared a reform movement in Germany—a new system, which was distinctly outspoken in its theory and diametrically opposite in practice to all former ones. I refer to homeopathy.

Hitherto the fanciful structures of the system builders were sufficiently strong to resist the incubus of venesection and depleting measures, which like a great ogre sat upon and overshadowed them all.

The voices which now and then were raised against these spoliative methods, though earnest and soul-stirring, proved too feeble amid the general acclaim for depletion. We are too familiar with the eccentricities of Hahnemann, which have been long inveighed against by many earnest physicians (called by his followers allopaths). And yet when we compare the crudities of Hahnemann with the fatal doctrines which have weighed like a nightmare upon the practices of our own predecessors, we may discern very little if any cause for the diatribes that have been launched against homeopathy. I am free to confess that medicine really is indebted to Hahnemann for having dared to set his face against the universal and fatal spoliative practice which dominated the entire medical world and oppressed even the

most judicial minds. As you know, he depended entirely upon infinitesimal doses, whose inertness the following example shows. He writes: "When lycopodium is treated in the manner homeopathic art develops crude drugs, and one grain is brought by means of triple trituration of one hour, each time with 100 grains of milk-sugar, to the millionth dilution and potency, a remedy of such wonderful activity is produced that one grain of it dissolved in 100 drops of dilute alcohol and twice shaken in the hands, results in a fluid which in the smallest possible dose is still too active in the disease for which it is appropriate. Not until the potentized sextillionth dilution is produced does the drug begin to be useful."

Such positively inert medication, to which he wisely added good dietetic and hygienic management, surely left the *vis medicatrix* full sway, and right royally did Dame Nature assert herself. Hahnemann thus became unwittingly the creator of an epoch in medicine, to which may be traced the reinstatement of the doctrines of Hippocrates and Erisistratus, untrammeled by the anatomical and physiological obscurity of their day.

(To be continued.)

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*THE EMPLOYMENT OF THE KALT SUTURE IN CRITICAL CASES OF CATARACT EXTRACTION.**

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While in Paris in 1894 I had the opportunity to see Dr. Kalt of that city insert the corneoscleral suture devised by him in six cases of cataract extraction. His claim was that it diminished the percentage of iris prolapse after simple extraction.

The suture was introduced before the corneal section was made, and the lips of the wound drawn firmly together after the delivery of the lens and the toilet of the eye had been effected. The suture is introduced in the following manner: A short, sharp needle, curved on a short radius and without a cutting edge, is made to enter the clear cornea about 2½ millimeters from the limbus, penetrating behind the anterior limiting membrane and well into the corneal substance proper, but not entering the anterior chamber. The exit is made in the clear cornea near the limbus. The needle is then made to enter the episcleral tissue in like manner just back of the corneal limbus, leaving space sufficient for the corneal section to lie between the scleral and corneal portions of the suture. A loop of thread two or three inches long should be left between the two insertions. This is placed to one side to avoid being cut in making the corneal incision, and is drawn home as the last step in the operation. When the ends of the suture are tied a slight puckering of the cornea is produced, but this disappears at the first or second dressing.

The operation did not, for various reasons, commend itself to me with sufficient force to lead to its adoption in ordinary extraction, but I have employed it in three cases where the attempt to extract the lens was an extremely critical procedure, since in each of them the prolapse of the vitreous would inevitably follow the corneal section, and the loop would be required for the delivery of the lens. In two of the patients the fellow eye was very defective, and in the third case totally blind. Failure, therefore, involved in one case at least permanent and hopeless loss of vision.

Case I.—Laborer, aged forty. Came to Wills Eye Hospital with vision so seriously impaired that he could not perform even coarse labor. His vision had never been good, apparently the result of zonular cataract in both eyes. Many years before his visit to the hospital a double, perfectly smooth iridectomy had been performed, leaving a broad coloboma in the lower and inner quadrant of each iris. Later a partially successful effort had been made to remove the lens on the right side, probably by repeated discissions. Sufficient vision had been secured to enable him to go about, but not to pursue any useful employment. On the left side the entire lens was opaque, the iris was tremulous, the suspensory ligament evidently ruptured.

After consultation with my colleagues at the hospital its removal was decided upon. Assisted by Dr. Harlan I introduced the Kalt suture parallel with a line passing through the axis of the coloboma. The corneal section was then made in the limbus of the cornea and was immediately followed by a large presentation of apparently healthy vitreous. The prolapse was pressed backward by the wire loop, which was then carried back of the lens, and the latter withdrawn with little difficulty, but leaving some opaque cortex

* Read before the Ophthalmic Section of the College of Physicians of Philadelphia, April, 1899.

apparently in the capsule which remained in the eye, the lens evidently escaping through a rupture in its lower periphery. The ends of the suture were then slowly drawn upon, shortening the loop and approximating gradually the lips of the wound over the prolapsed vitreous, which slowly returned within the eye. The suture was then tied firmly, bringing the edges of the wound into apposition, and the eye was closed without loss of vitreous.

The recovery was without accident, and pursued an entirely normal course. The stitch was washed away during the dressing about the fifth day. The result was V. = $\frac{1}{8}$. It is possible that the vitreous in this case might have been replaced by other means, or it might have returned after a few moments of rest with the lids closed, but the danger of infection would have been greater, and I have not been equally successful by other methods in cases of prolapse of the vitreous. The sense of security afforded to the surgeon by the presence of the suture is very great under circumstances where a loss of fortitude by the patient might lead to a complete emptying of the ball. One objection to the presence of the suture is the possible increased danger of infection of the cornea at the points of its insertion and exit; but this was not even threatened in either case here reported, and the danger probably finds compensation even in this respect by the rapid closure of the corneal section.

Case II.—Mr. M., aged forty-one; private patient. Had always had defective eyes, but consulted me on June 26, 1894, for progressive failure of vision, postocular pain, and undue sensibility to light. He had a shallow anterior chamber on each side, and pupils were not larger than an ordinary pin's head. The irides were tremulous, O. D. V. = $\frac{6}{xxiv}$, O. S. V. = $\frac{6}{xxx}$, and he was able to read D. = 1 at about twenty-five centimeters. There was no range of accommodation. He had never worn glasses. The pupils under cocaine and atropine dilated to about 2½ millimeters. Ophthalmoscopic examination of the fundus oculi was unsatisfactory, owing to the small diameter of the pupils. The ophthalmometer indicated an astigmatism in O. D. = 5.00 D. axis of correcting cylinder 105°, and he selected + 1. ⌒ + 5.00^c axis 105° V. = $\frac{6}{xii}$; O. S. = 5.00 D. axis of correcting cylinder 75°, and he selected + 1.50 ⌒ + 5.00^c axis 75° V. = $\frac{6}{xii}$. He received these glasses for constant wear and enjoyed complete relief from the postocular pain, and dread of light. One year later he selected a stronger spherical glass for each eye, the cylinders remaining unchanged, and vision rose to $\frac{6}{ix}$, most letters in $\frac{6}{vii\ 1\text{-}3}$. In January, 1896, he returned with a cataractous lens on the left side, which he said had come on within a few weeks while absent from home, and had been preceded by a return of the postocular pain and dread of light. These symptoms disappeared as soon as he was no longer able to see with the left eye. He had but little difficulty, following the loss of vision in O. S., until August, 1897, when vision began to fail in O. D. from commencing opacity of the lens, the opacification beginning in the upper and outer quadrant, instead of the lower and inner, as is usual. A preliminary iridectomy was then advised for the left eye, and performed on October 26, 1897. The operation was smooth, and the eye recovered without accident, although convalescence was more protracted than usual, and he had frequent photopsies.

A month later extraction of the lens was attempted and was attended with much loss of vitreous and a protracted convalescence, but V. = 20–64 with + 14 ⌒ + 1.50^c axis 10°, the ophthalmometer showing As. = 1.50 D. axis of correcting cylinder 10°. It is interesting to note the surprising change which had taken place in the corneal radius. Before operation there was 5.00 D. of astigmatism with the rule—*i.e.*, at 105°. After extraction this had disappeared, and the longer radius was at right angles to its former position. As. = 1.50 D., so that a change of curvature amounting in all to 6.50 D., as expressed in the value of the correcting glass, had taken place in the process of healing.

April 4, 1898, a preliminary iridectomy was done on the right eye, and the following October the extraction of the lens. In view of the experience with the left eye the Kalt stitch was introduced. The section was then made, and was followed promptly by a large protrusion of a semifluid vitreous, and the lens was delivered with the loop as in the other eye, leaving some opaque cortex within the eye apparently enclosed in the vitreous, which filled the anterior chamber and protruded through the wound. No attempt was made to remove the remnants of cortex. The ends of the suture were then slowly drawn upon; the protruding vitreous promptly receded, and the lips of the wound were forced into apposition. No vitreous had to be excised. The wound healed promptly and con-

valescence was rapid, so that the patient was discharged from his room in the Polyclinic Hospital in two weeks from the date of operation. A capsulotomy was necessary a few weeks later, after which vision rose to 6–xx with + 14. ⌒ + 2.50c axis 100°. The ophthalmometer indicated 2.50 D. of astigmatism, axis of correcting cylinder at 100°. It will be observed therefore that the prompt healing of the wound made possible by the stitch avoided the marked change in the curvature of the cornea witnessed in the first eye. There a change of 6.50 D. followed the operation, but in the second eye of only 2.50 D.

CASE III.—Female, aged fifty-two. Sent to me at the Wills Eye Hospital by Dr. E. A. Gearhart, of Allentown, Pa., on February 3, 1899. O. D. blind; O. S. counted fingers with much difficulty in upper and outer field, but was unable to go about alone. The eyes were white, T. = n. There was a broad peripheral coloboma at the inner and lower quadrant of the iris in both eyes, and the lenses were opaque. In the left the iris was tremulous, and a wave could be seen in the anterior chamber with every movement of the eye. The suspensory ligament was ruptured. She was free from pain. She had been under the care of Dr. D. Hall at the hospital, and presented the card received at that time. The old record was consulted, when it was found that she had been admitted to the hospital with syphilitic iritis on October 7, 1886. She was then blind in the right eye, and the lense was cataractous. The state of the vision in the left eye is not noted. There was annular synechia in both, for which double iridectomy was done at the same sitting on October 12, 1886. After leaving the hospital she relates that the vision improved in the left eye so that she was able to see her way about her own house until seven years ago, when she was struck in the eye with a stick, since which time she has been helpless. She was extremely solicitous lest she might lose her small modicum of vision still retained, but finally consented to an operation. Profound general anesthesia was secured, and with the aid of my assistant, Dr. Thorington, and the house surgeon, Dr. Ford, the Kalt suture was introduced as in Cases I and II, and a section made parallel with the base of the coloboma in the corneal limbus. A large mass of vitreous immediately presented. The wire loop bent into a spoon shape was then inserted, gently pressing the protruding vitreous backward, and carried well behind the lens, embracing its posterior surface in the concavity of the loop. The lens was delivered without difficulty, its exit being aided by following its movement outward by pressure through the cornea with a horn spatula. The lens was extracted in its capsule and left a clear black pupil. The suture was then drawn upon as in Cases I and II. As the lips of the wound approached, the protruding vitreous slowly returned within the wound, except a small bead at the outer angle, which was excised. The edges of the corneal section were gently stroked into close and smooth coaptation, and the suture firmly tied. The eye was closed, a cross of isinglass plaster placed over the lids, and a cotton pad and bandage applied. The eye recovered without reaction. There was slight bulging of the wound at the outer angle on the third day, where the vitreous had been excised, but the anterior chamber was restored, and the patient was able to count fingers in candle-light. The stitch was removed on the seventh day, and the patient allowed to get out of bed. There had been no evidence of infection around the threads at any time. On the tenth day the eye was quiet and rapidly losing its injection. A minute scar could be seen in the cornea at the site of the suture, but was larger and much more conspicuous at the scleral portion of the stitch. The anterior chamber was of normal depth, and the cornea showed no distortion. The wound was smooth and flat throughout its entire extent, and the pupil clear and black. Patient is greatly pleased over her improved sight, but no letters can be made out.

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*CUTANEOUS BURNS AND THEIR TREATMENT.**

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Technically a cutaneous burn may be defined as an inflammation of the skin produced by heat, but clinically those inflammatory conditions caused by the sun and by electricity must be included, though the heat produced by them is not the principal factor in all cases. The earliest classification of burns was that of the celebrated Dupuytren, who divided all burns into six degrees according to the extent of the tissue destruction, but there has been a growing tendency

* Read before the New York Medical Union, March 28, 1899.

to simplify this classification, and Rayer's modification of it has come into general use. This extends only to three degrees, the first including all burns characterized by simple reddening of the skin, without vesication, the second those in which vesicles or blebs form but without doing permanent harm to the skin, and the third those in which enough tissue is destroyed to cause the formation of scars.

Theoretically burns of each degree should present characteristic features, both clinically and microscopically, but in actual practice we not infrequently find lesions of all three degrees in the same case, while very often lesions of the first and second degrees are changed by the invasion of bacteria into lesions of the second and third. Burns of the first are often trifling affairs, but when extensive may be productive of much discomfort and even constitutional disturbance. The skin becomes decidedly red and swollen, presenting an appearance not unlike that of erysipelas without its sharp definition; pressure momentarily drives the blood away, leaving a dirty, yellowish stain, and when the pressure is removed the blood flows back very slowly. In the course of a few hours or days the redness is gradually obscured by thickening of the epidermis, the swelling gradually disappears, and a process of exfoliation continues until the skin is again normal in thickness.

Clinically burns of the first degree, whether produced by dry or moist heat or by the sun, present about the same appearance, but pathologically they are very different.

A sunburn is not at all dependent on the production of heat, for it is especially marked in certain skins exposed to the action of sunlight reflected from water and snow and ice, even though the temperature may be many degrees below zero. A burn of this kind is probably due to the action of the violet rays of the spectrum on skins predisposed to the process. Presumably the actinic rays exert a chemotactic action capable not only of causing the development of pigment in the skin, but when long continued, of producing true inflammation and exudation. The pigment is supposed to be formed from disintegrated red blood cells.

Burns of the first degree which proceed from the direct application of heat are much better understood. The first effect of intense heat on the skin is the stretching of the horny layer, which when the heat is dry remains stretched and loses its elasticity. This is very well shown by the little horny ridges that follow the light application of the Paquelin cautery to the skin in lumbago. In the living subject the usual changes comprised by the word inflammation begin at once and last a varying time, but as no essential part of the skin has been destroyed no permanent damage to its integrity results. In the way of treatment the only indications are to relieve pain and to hasten the exfoliation of dead skin, both of which are met by the application of a five-per-cent watery solution of ichthyol to which a little starch and albumen have been added.

In burns of the second degree the skin is at first considerably reddened, and within a short time vesicles appear, large or small, flaccid or tense. Many vesicles discharge their contents, and only tags and shreds remain. Their size varies greatly and depends largely on the thickness of the skin, those over thin areas becoming very large and rupturing early, while those in thicker locations appear much later and are smaller in size. Eventually the blebs break and suppurate if let alone, or dry down and form crusts and scales, which drop off. Very naturally burns of the second degree, if extensive, may be productive of great agony and shock.

Pathologically, the first effect of the heat is the stretching of the horny layer, which remains, if the heat has been dry, somewhat raised and inelastic. At the same time there is not infrequently, if the heat has been intense, enough steam developed from the moisture in the tissues to cause an instantaneous appearance of small vesicles; but the formation of true burn vesicles and bullæ is a later and entirely different manifestation. Here there is an evident distinction between the action of moist and dry heat. In the dry burn the horny layer remains permanently stretched and appears loose, and as a result the exudation, even if it be slight, is distributed pretty evenly under its cover because of the lack of outside pressure. In the moist burn, while the cover is stretched by the heat it retains its elasticity and at once regains its shape. As a result, when exudation does occur the size and shape of the bullæ depend entirely on the amount of fluid, first appearing in the center, where pressure is least, and spreading gradually toward the margin, where pressure is greatest.

In a dry burn we may find a good many flaccid bullæ, because the horny layer is stretched over a large area, but the burn

being superficial, not enough fluid is produced to make the bullæ tense. Therefore the bullæ in a dry burn tend to be flat-topped. In the scald, on the other hand, the elastic vesical wall fits closely over the fluid, be it great or little, and the vesicles are tense and tend to assume a dome shape. The amount of exudation seems to depend on the extent of damage done the prickle cell layer, and is regarded as due to chemotaxis following the death of tissue.

The inflammatory process is greater than in primary burns, but no essential structure is destroyed and no scar follows.

The indications for treatment in such burns are three: first, to relieve pain, which is always intense; secondly, to prevent infection, which is certain to produce cosmetic defects, and may cause grave constitutional disturbance; and thirdly, to hasten repair by increasing cornification. For relief of pain immersion in water is one of the oldest and most successful methods, but it must in most cases be a temporary expedient, for a wet dressing does not by any means answer the same purpose. In those extensive burns where life itself is in danger there is no treatment to compare with it. The patient lies day and night in a tub of running water, which is kept at about the body temperature and may be medicated if desired. By the constant flow of water air is kept from the surface and good drainage assured. Repair is somewhat hindered by the constant soaking, but the keeping the patient in comfort till all danger of shock is past is of far more importance.

In milder cases the application of carron oil (equal parts linseed oil and lime-water) has been for years a popular dressing, and if some antiseptic be used with it every indication is met; however, it is an ill-smelling, disagreeable dressing. When healing has progressed somewhat further it can be replaced by any soft antiseptic ointment like carbolized vaselin or aristol ointment. Cocaine solutions are never essential.

In all cases of burns beyond the first degree antisepsis should be carefully maintained, and in this connection it should be remembered that absorption occurs very readily from a burned surface. For this reason antiseptics such as carbolic acid and bichloride should be used in very weak solution and never applied as permanent wet dressings. A one-per-cent creolin solution makes a very serviceable antiseptic devoid of toxic properties, but boric acid and borax are the best drugs of their kind to use. Formalin in my experience has proven very irritating.

For the last two years I have been using a solution of picric acid, not only on burns of the second degree, but on other cutaneous affections attended by the formation of vesicles, and with very satisfactory results. It is a yellowish, crystalline powder, produced by the action of nitric acid on phenol, and is freely soluble in alcohol and less so in water. It is a good antiseptic and oxidizing agent, and has of late years been considered one of the best reagents for detecting albumin in urine. It is not by any means a new drug, but has lately been taken up by the French school of dermatologists, who recommend its use in aqueous solutions of from two to five per cent. It can be used in primary burns, for it relieves the pain almost at once and promotes cornification and exfoliation to a considerable degree; but it has the disadvantage of staining the skin a bright yellow, which in many cases might outweigh its advantages. Accidentally I found that the combination of picric and citric acids, which Esbach long ago devised for the detection of albumin, was more effective than the picric acid alone.

Esbach's solution consists of 10 parts of picric acid, 20 of citric acid, and 1000 of water. Without any elaborate attempts at antisepsis the bullæ and vesicles should be opened with a clean blade and the fluid applied freely, care being taken that the solution reaches the interior of each one. Picric acid is rather a weak acid and coagulates albumin poorly in an alkaline medium. The citric acid acidulates the alkaline contents of the vesicles, which the picric acid promptly converts into an antiseptic coagulum capable of resisting infection and excluding the air. The combination after the first smart has passed removes the pain more quickly and completely than anything I have ever tried. After the excess of fluid has drained off the part may be covered with rubber tissue or soft gauze and left undisturbed for several days. It makes a clean and comfortable dressing, and I have never observed any toxic effects, though I have several times used it over quite large surfaces. Two cases of poisoning by picric acid have come to my notice, but in both six ounces of ten-per-cent ointment were used over extensive surfaces in very young children; the symptoms being very like those from carbolic acid poisoning.

After two or three days the fluid should be reapplied to such areas as are moist and the part carefully recovered.

In burns of the third degree the color of the dead skin is apt to vary very much in different cases. Sometimes it is ivory white with the course of the blood-vessels marked by brownish lines; in other cases the whole skin may be brown or even black. It is dry and hard and devoid of sensation. Many times it is impossible to estimate the extent of the damage, but after a few days the dead tissues begin to separate from the living, and after the usual process of suppuration the slough comes away and scar tissue forms. When such a burn becomes infected and suppurates freely the stench is frightful. In a good many cases the deeper lying portions of the skin, like the glandular appendages and hair follicles, are not entirely destroyed, and forming centers for epithelial cell proliferation, lessen the amount of scarring. The process of repair is naturally much slower than in burns of the second degree. The variation in color of the dead skin is perhaps susceptible of this explanation. When the skin is subjected to moist heat of a high degree for some time it is converted into a gelatinous mass, white in color, while the blood in the vessels becomes a dirty brown; on the other hand, when dry heat is continuously applied the skin first becomes gelatinous and white from being steamed in its own juices, and afterward brown when it is burned to a condition of dryness, and finally black when carbonization has taken place. Burns of the third degree often produce very extensive scars, the after contraction of which may cause serious deformity. The pain is not a marked feature at first, for the whole skin with its nerve terminals is dead, but after the dead tissue has separated the granulations are often exquisitely sensitive.

The treatment must be largely confined to the limitation of suppuration and scar formation. The separation of sloughs is hastened by wet dressings of boric acid, and the formation of healthy granulation is aided by applications of balsam of Peru or silver nitrate. In extensive burns, or where a scar would cause deformity or disability, skin-grafting after the method of Thiersch should be done.

I cannot lay claim to any extended experience in skin-grafting, and speak of the subject largely for the purpose of obtaining information from others who may discuss it. It seems like a simple enough procedure. The grafts are cut with a razor from the skin of the same patient or another under general anesthesia or infiltration anesthesia with a weak cocaine solution, planted at once on the healthy granulations, and afterward covered with rubber protective and not disturbed for several days. If the grafts are put close together and take nicely suppuration stops; if they are separate, each one acts as a center of cell proliferation, and the intervening space, if not too great, is finally covered.

As regards antiseptic precautions, the granulating surface suppurates freely, and I presume it is a practical impossibility to secure absolute asepsis. I have used at different times peroxide and boric acid and salt solution and plain boiled water for purposes of cleanliness, and the grafts took about equally well in all. Of course, the skin from which the grafts are cut should be sterilized, and any solution which could interfere with union on either graft or granulation should be washed off with salt solution.

As regards the thickness of the grafts, some of the books say the thicker the grafts the more the result looks like normal skin, and I have heard men of some experience say the thinner the grafts the better they take. In my own experience it seemed that the grafts of the thickness of tissue-paper took equally well and formed as satisfactory cuticle, while of the thicker ones only the lower layers of cells remained adherent to the granulations, the upper ones generally coming away at the first dressing. I have once or twice used grafts from a second individual, and it has not seemed to me that they took as well as those from the same patient, but this may not be the common experience.

The prognosis in burns of all degrees depends more on the condition of the patient and the extent of the burn than on its depth. As a general rule burns involving one-third to one-half the cutaneous surface are said to prove fatal in from eighteen to forty-eight hours. The cause of death is a matter of dispute to this day. According to Von Loeser death is the result of an acute oligocythemia following the destruction of red cells and accompanied by a fall of temperature from lack of oxygen and nutrition in the tissues. Lustgarten lays it to ptomaine poisoning, and others have ascribed it to the destruction of sweat glands producing a condition analogous to that of the varnished animal. According to Silberman thrombi formed from disintegrated blood cells are

deposited in the pulmonary artery, thus causing a venous stasis and accounting for the congestion of internal organs, the dyspnea, cyanosis, anuria, and coma. Perforating ulcer of the duodenum occurs as late as the tenth day, leaving a clearly cut opening very suggestive of embolism. Erichsen, perhaps conveying as much definite information as the rest, pronounced shock to be the cause of death.

It remains to say a word regarding burns by electricity, which are very frequent now that so many individuals have to do with its production and use. So far as I have been able to ascertain there has so far been placed on record no careful study of the nature and pathology of this variety of burn, and while I have personally seen quite a number of cases I would not venture to discuss a condition which depends on so many varying factors.

Clinically, electrical burns may present symptoms of either of the three degrees, but microscopically they will probably be found to differ in a good many points, owing to the effects of the strong currents on cell life aside from the actual heat developed. The heat effects are probably mostly shown upon the skin, for electricity develops heat only when the resistance to its progress is great, and it is a well known fact that in the skin this resistance is very great, while in the other tissues it is very slight. Conversely, the other effects of electricity are more likely to show themselves in the subcutaneous tissues, for the current tends to travel along the path of least resistance. Theoretically, the severity and extent of the burn should depend to some degree upon the condition of the skin, whether dry or moist, for an abundance of salt containing sweat would lessen the resistance and with it the heat produced. In electrocutions I am informed that when the electrodes are properly moistened so that the skin resistance is eliminated, death ensues without any burning, and it may be this factor of skin resistance which would explain the harmless passage through the body of currents usually sufficient to cause death.

Owing to the secondary effect of the current on tissues not actually burned, it is almost impossible to forecast the result of electrical burns, but it is almost certain to be worse than any other variety. In my experience, which coincides with that of others, even if the tissues do not slough the process of repair is very slow and the prognosis should be very guarded.

THE TREATMENT OF CROUPOUS PNEUMONIA WITH HOT-WATER BAGS.

The *Maryland Medical Journal* of March 25, 1899, has in it an article by KOLIPINSKI on this theme. He thinks that as soon as croupous pneumonia is diagnosed, the treatment should be as follows: A pair of hot-water bags are selected, the largest size found in the shops, preferably of the capacity of a gallon. These are filled with boiling water, well secured from leakage, and each one wrapped in a small shawl of compact texture or in a portion of blanket cut for the purpose. They are then placed side by side on the bed so that the mouths of the bags point upwards; over them is placed a third shawl folded several times, or a further piece of blanket; above them two or possibly three pillows are arranged for the patient's head. The bags thus form a sort of shallow cradle for the postscapular regions. To make the plan clear to the attendant he is told that the bags must be placed like a knapsack on the back of a soldier and a little higher up as well. The bags are refilled every three or four hours. The exterior temperature, found by placing a common atmospheric thermometer between the coverings of the bags and the patient, varies from 95° to 130° F. A mean temperature of 110° F. should be aimed at, as an elevation of 120° F. or more is liable to inflict severe burns on the skin, particularly so if the patient's cutaneous sensibility is for the time obtunded. These burns, which Dr. Kolipinski says he has frequently met with, due to the overzeal or excitability of the attendants, have no untoward effect in the course of the lung fever, but very probably the opposite, and a pneumonia may disappear in a day or two when this accident has happened, although the injury itself may remain for two or three weeks.

The bag treatment is continued without intermission until the body temperature returns to normal and remains so for a day or two.

THE TREATMENT OF ACUTE RHEUMATISM BY METHYLENE BLUE.

LEMOINE has reported to *La Presse Médicale* of February 1, 1899, his employment of methylene blue in acute articular rheumatism, and claims to produce results which are equal to those produced by salicylate of sodium. It also acts well in gonorrheal rheumatism. He states it is essential that the blue which is employed shall be free from contamination by zinc.

The Therapeutic Gazette

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Leading Articles.

DANGER IN DRUGS OF UNKNOWN POWER.

In the May issue of the THERAPEUTIC GAZETTE, under the head of "Notes and Queries," will be found the call issued by the President of the Convention for a revision of the Pharmacopœia.

We have already, in earlier issues of the GAZETTE, urged that in the new revision care be taken to exclude useless drugs, that a dose list of approximate minimum and maximum quantities be introduced, and far more important than all, that whenever possible drugs should be standardized by careful chemical assay, *or where this is impossible, by physiological test.*

It has always seemed to us that medical men were contented to a large degree to carry out the cynical statement of the man who remarked that "physicians were persons who poured drugs of which they knew little into the bodies of patients of which they knew less," and there is scarcely a physician who, after studying his case with the greatest skill and with the aid of all possible modern appliances, will not be careless enough to prescribe a tincture, fluid extract, or other preparation of some active substance, upon which the life of the patient and his reputation may depend, without making any investigation as to whether the pharmacopœial product which is dispensed is capable of producing the results which a standard preparation should produce.

The writer of this editorial very frequently sees in consultation cases in which physicians have administered digitalis in varying doses with disappointing results, either because the drug has failed to do good through inherent weakness, or else because it has been so unduly strong that ordinary doses have produced such distinct physiological symptoms as almost to amount to conditions of mild poisoning, and when a properly standardized and physiological preparation of digitalis is substituted the results at first sought are promptly obtained.

It has been stated that chemical analysis and physiological testing are not practicable, in that it is impossible for the ordinary druggist who prepares his galenical preparations to go to the expense of time and labor in making these tests. It seems to us that this argument is so fallacious as to be actually dangerous.

When physicians employ chemical compounds in medicine they are careful to see that these compounds are made by manufacturing chemists whose ability and reputation guarantee that the proportions of the various ingredients are chemically correct, and any physician or druggist who was careless enough to dispense a chemical compound in which the proportions were faulty, and who failed to produce good results, would certainly be considered criminally negligent. In other words, we have come to a recognition of the fact that large chemical firms are enabled to employ skilled and trained assistants, under whose supervision only accurately compounded substances can be issued. Surely in the case of vegetable substances, which constantly differ in their strength, equally carefully trained directors should be constantly at work to standardize their products.

Every farmer knows that his crop of oats and wheat will vary with the condition of the soil and the amount of rain and sunlight to which it is exposed, and if he is intelligent he will also know that the various active food ingredients in the oats and wheat will vary according to whether his crop is exposed to

favorable or unfavorable conditions; yet the physician, who as a rule has far better mental training, fails to recognize that the medicinal ingredients of digitalis and all the other important vegetable drugs are subject to the same influence as ordinary food products, and yet he is content to employ digitalis leaves which grew he knows not where and under circumstances which in some cases may have made them inordinately powerful and in other instances practically devoid of medicinal ability.

In our struggle with disease we are sufficiently handicapped by the fact that man is mortal and that our knowledge is limited, without in addition adding to the difficulties by the employment of uncertain products when accurate ones can be readily obtained.

Three important drugs have already been standardized under the action of the last committee on revision. Let the good work go on, and let the convention of 1900 mark an epoch in the history of American Pharmacy and Medicine by the changes that we have suggested.

THE RATIONAL TREATMENT OF PNEUMONIA.

In this issue of the THERAPEUTIC GAZETTE is an interesting article by Dr. Elsner, of Syracuse, upon this question, and in it he emphasizes several points which we believe to be of vital importance in the treatment of this malady. The most important, however, is the fact which he mentions, namely, that in this disease we find almost constantly marked relaxation of the blood-vessels, whereby the normal resistance of the action of the heart is removed and it pumps futilely in an effort to fill blood-vessels which are so widely dilated that there is not enough blood in the body to supply them.

It will be noticed that in one place he inveighs against the common use of nitroglycerin in these diseases, and points out that experimental study has shown that the toxins of pneumonia cause vasomotor relaxation or paralysis, a condition which is produced by all the nitrites, and therefore the administration of nitroglycerin simply increases the difficulty under which the patient is laboring.

It seems to us that this point is well taken. While on the one hand we recognize that at times in the course of pneumonia the heart may be relieved by lowering arterial tension by the use of this drug, on the other hand, taking the course of the disease as it usually occurs, such treatment is not usually necessary. The methods which Dr. Elsner advises for the purpose of overcoming these conditions of vasomotor relaxation are all of them wise, but there is one which we have been in the habit of employing with the greatest possible satisfaction and which he does not emphasize, namely, the use of belladonna or atropine, often combined with small doses of digitalis, as for example five minims of a tincture of digitalis made by diluting "normal liquid" digitalis with alcohol until its strength represents that of the tincture, given every six hours, and five to ten minims of tincture of belladonna every three hours; or if the condition of the heart is exceedingly pressing and the blood paths are relaxed, the skin being moist and covered with a clammy sweat, we immediately administer hypodermically $\frac{1}{150}$ or $\frac{1}{100}$ of a grain of atropine sulphate and $\frac{1}{30}$ grain of strychnine to bridge the patient over his crisis until the drugs administered by the mouth have an opportunity to act.

We are glad to find that Dr. Elsner holds the views that he does, for these have been our views for a number of years, and we have again and again reiterated our opinion that physicians are too apt to ignore the condition of the blood-vessels in the treatment of acute disease, and concentrate their attention upon the heart muscle itself.

The readers of the THERAPEUTIC GAZETTE may perhaps remember an article by the writer upon the "Vasomotor System as a Factor in Disease," which was published some years ago, and also that we have drawn attention to the importance of this part of the circulatory apparatus in an editorial more than once.

THE TREATMENT OF INTESTINAL PERFORATION IN TYPHOID FEVER.

Another article in this number, which seems to us worthy of editorial comment, is that of Dr. Taylor upon this subject. We have during the last eighteen months published in the editorial and progress columns of the GAZETTE a number of contributions in regard to this very important question, and it will be remembered that professional opinion is more and more in favor of operative interference in this dreadful complication of typhoid fever, which is fatal in nearly every case unless the surgeon can give relief. Even when it is possible for him to operate, the mortality is

still very high, but the percentage of cases which have been saved makes it well worth while to do abdominal section in nearly every instance, not only because cases which were apparently hopeless have been saved, but also because even in patients who were apparently at death's door the operative interference, followed by washing out of the abdominal cavity with normal saline solution, has caused them to rally and frequently to recover.

The two most important questions in connection with this subject, after deciding that operative interference is wise, are, first, as to the diagnosis of the condition, and second, as to when operation should be performed. While the text-books may seem to indicate that a diagnosis of intestinal perforation in typhoid fever is a simple matter, those who have had most experience know it is not easy, and that at times it is exceedingly difficult. As is pointed out in the writer's recent monograph upon "The Medical Complications and Sequelæ of Typhoid Fever," other conditions than actual perforation may cause violent abdominal pain and symptoms of collapse. Peritonitis may arise from infection of the peritoneum through the intestinal wall, before it is perforated; the rupture of a mesenteric gland, which has undergone suppuration, may produce similar symptoms; and more than all, it is important to remember that a certain proportion of cases of perforation occur in which pain is very moderate or entirely absent.

A very important diagnostic aid in determining the fact that the abdominal pain or disturbance is due to an acute inflammatory process in the peritoneal cavity is an examination of the blood. It is a well known fact that the leucocytes are not increased in typhoid fever as they are in other infectious diseases, unless some acute inflammatory complication arises, and therefore, if in association with marked abdominal symptoms leucocytosis develops, we at least have reason to believe that an inflammatory complication has arisen, although leucocytosis by no means proves that perforation itself has occurred.

The experience of some practitioners, notably that of Dr. Cushing, indicates that in cases in which there is a good deal of abdominal discomfort and pain, and in which perforation is imminent by reason of the near approach of the ulcerating process to the peritoneal covering of the intestine, leucocytosis may occur in what has been called the preperforative stage, and that if leucocytosis is very marked and rapidly increases, abdominal section as a preventive measure is perhaps justified. These studies are very suggestive, although as yet it does not seem possible to rely on them absolutely.

THE TREATMENT OF SOFT CHANCRES.

The term soft chancre, or chancroid, is one commonly applied to all venereal lesions which are not syphilitic—*i.e.*, to herpes, severe balanoposthitis, infected abrasions, and a large number of genital lesions, which under simple treatment by ordinary cleansing applications heal in a few days, or at most in one or two weeks. The researches of Unna, Ducrey, Krefting, Peterson, and a host of others have, however, proven as conclusively as is possible, in the absence of inoculation from pure cultures grown on artificial media, that a chancroid is a distinct entity, dependent upon a specific strepto-bacillus, of characteristic form, size, and grouping. Moreover, it is well known to clinicians that while the ordinary infected trauma of the genitalia heals in a short time under any simple treatment, chancroid undergoes a period of evolution and extension for a period of three or four weeks, in spite of the most careful and persistent application of mild cleansing medicaments, after which it gradually heals; when the lesion is placed about the frenum, if it has once attained headway, a period of from four to eight weeks is likely to elapse before it is completely cured. In other words, the virus of a true chancroid, though little affected by mild local applications, is finally rendered inert by the tissue resistance of the body; and providing this is fairly strong, the bacilli are so acted upon that they are not capable of further multiplication at or about their seat of inoculation, nor can they be inoculated successfully to another part of the body, nor to another person.

These facts being true, the question of aborting a chancroid—*i.e.*, of destroying the virus before it has penetrated into the tissues so deeply that it cannot be reached by germicides—becomes of prime importance. It is interesting to note that Horovitz, in a recent contribution on the subject of chancroid (*Centralblatt für die Gesammte Therapie*, April, 1899), states that abortion is not possible, basing his belief on the well known fact that a chancroid has no distinct period of incubation, but may develop in a few hours. He advises, however, where it is practicable, that the chancroid should be seized in tooth-

forceps and cut out by a snip of the scissors; this operation being preceded by a thorough cleansing of the surrounding parts, and the incision being carried wide of the disease. The resulting wound is closed by suture.

The experience of the majority of surgeons who have attempted this method of procedure in any considerable number of cases is to the effect that chancroidal infection of the resulting wound is extremely likely to occur, resulting in a much larger and more serious lesion than that for the relief of which the primary operation was attempted. The destruction of the sore in its early stages by chemical applications, such as pure carbolic acid or nitric acid, Horovitz utterly rejects. In this again he differs widely from American practitioners. Clinical experience has demonstrated conclusively that in their early stages the vast majority of chancroids can be painlessly and totally deprived of their specific properties by the application of a strong solution of cocaine, followed by thorough impregnation with pure carbolic acid. This should, however, be followed in turn by a thorough cleansing of the entire region about the sore, and the application of a dressing kept wet with a mildly antiseptic lotion.

In preference to any attempt at operative treatment, Horovitz advises a thorough cleansing of the region affected by the sore with a sublimate solution 1:3000, or carbolic solution 1:20. The ulcer is then covered with iodoform powder or iodoform gauze, over which is placed cotton soaked in a five-per-cent solution of carbolic acid; over this is placed an air-tight bandage, which is left on for two or three days. This air-tight bandage seems to have for its main object the confining of the disagreeable odor of iodoform. Airol is suggested as a substitute for iodoform. The author notes that edematous swelling often follows this dressing.

Theoretically it would seem to be almost as pernicious a means of treating chancroid as could possibly be devised. A single application of a five-per-cent carbolic acid solution to the sensitive skin of the genitalia is even in itself enough to cause an edema which offers most favoring conditions for the rapid and dangerous spreading of a chancroid. All dusting powders are to be avoided, excepting in the late stages of the disease, when the specific nature of the infection has been lost, because by forming a crust, and retaining secretion, they act as powerful favoring factors in the production of bubo. Moreover, any dressing which is left on three days would, in addition to favoring this complication, encourage an inflammation of the surrounding parts by decomposition of the retained secretion.

The most successful treatment of chancroid, when the period for attempting abortive treatment has passed by, or when this has failed, is by frequently repeated cleansing and the application of gauze or cotton soaked in a mild antiseptic lotion, such as lead-water, blackwash, creolin, or very dilute bichloride of mercury lotion. The constant changing of the dressing—and it should be changed at least every two hours—keeps the parts perfectly clean, and thus prevents the formation of bubo. Moreover, the astringent action of a lotion such as dilute lead-water prevents the development of edema, and thus increases the local resistance of the tissues. Also there can be no doubt that although the germs do penetrate more or less deeply into the tissues, the mild antiseptics applied directly to the clean ulcerating surface also to a certain extent penetrate and inhibit growth.

The reports of clinics show, in practically all countries, that there has been an enormous diminution in the number of chancroids, and that chancre is at the present time a much more frequent lesion. There is some reason to hope, with Peck, that in the future a greater dependence upon the medical profession on the part of the public may cause the complete disappearance of chancroid from the list of common diseases. Until that time comes, however, surgeons, and particularly those who have charge of out-patient departments, will have large numbers of chancroids to treat. It is to be hoped that if they do not succeed in abortive measures, and most important among all these perhaps is the local application of heat, they will devote their main attention to the question of local cleanliness, thorough drainage, and the avoidance of all irritating applications which may encourage local edema.

Reports on Therapeutic Progress

SUBCUTANEOUS INJECTIONS OF ARTIFICIAL SERUM IN TYPHOID FEVER.

GIGLIOLI and CALVO (*Contributo Clinico allo Studio delle Injecioni sottocutanee di Siero Artificiale nella Febra Tifoidea*, Florence, 1899) report the results of a series of trials of subcutaneous injections of artificial serum (physiological solution of chloride of sodium) in a recent epidemic of typhoid fever in the

outskirts of Florence. The injections were made on the outer aspect of each thigh alternately, 500 cubic centimeters of the solution being administered in one injection. Control experiments were made on two persons in good health, in whom the effect of the injections was to produce slight agitation, sweating, an abundant flow of urine, but no marked rise of temperature. Details are given of eighteen cases of varying degrees of severity and in various stages of the evolution of the disease. The phenomena of reaction following the injections consisted, generally speaking, in the majority of cases, in a characteristic modification of the thermic curve, gradual rise of temperature to the extent of 3° C., with subsequent fall to normal, slight general depression, sweating, and increased excretion of urine. The authors never observed nausea, vomiting, shivering, or mental excitement noted by other observers, and they think this probably due to the fact that in no single injection did the dose exceed 500 cubic centimeters, while the procedure was carried out slowly with slight pressure, so that absorption could take place in a slow and continuous manner. Immediately after the injection the pulse was always accelerated, but was stronger and more regular. In the majority of the cases—even in those of greatest severity, in which the temperature fell but slightly or not at all after the injection—when the reaction had ceased, an improvement in the general condition was noted, but this effect was naturally more marked in cases in which the injections caused a distinct fall of temperature and improvement in the pulse.

Summing up their results, the authors say that, while the method is not to be regarded as a specific in typhoid fever, it affords a valuable means of relieving symptoms. In cases in which the disease was relatively mild, and the temperature not too elevated, injections were followed by a marked feeling of relief and a lowering of temperature, which, however, did not become lasting till after several injections had been given. But even in the most favorable cases the authors do not feel justified in stating that the injections were the principal factor in the cure. At most they hastened it, and made it easier. In cases where the temperature was very high and the disease very severe, or in which there were cardiac or nervous complications, the effect was practically *nil*. The authors think, however, that in every case these injections, which are perfectly harmless, might supply a useful means of prognosis, since the intensity of reaction varies directly with the intensity of the infection, and may thus be taken as an index of the severity of the disease.—*British Medical Journal*, March 11, 1899.

SOME CLINICAL ASPECTS OF GRANULAR KIDNEY.

In the Lettsomian Lectures for this year West goes over the subject of granular kidney exhaustively, and from the *British Medical Journal* of March 11, 1899, we find that he has something to say of its treatment.

If we knew the causes of the disease we might take steps to prevent it; but not only are the causes unknown, but the disease is not even recognized in most cases until it is already far advanced. Little or nothing definite, therefore, can be done at present in the way of prophylaxis or prevention. But as it is in the early stages that we are likely to be able to do most good, the importance of an early diagnosis is obvious. Nor when the disease is far advanced can it be cured, for scar tissue cannot be removed from the kidney by therapeutic means any more than from the skin or from the liver.

But because we do not know at present how to prevent the disease developing, and cannot restore the diseased organs to their normal condition, it does not follow that treatment is of no avail. If we cannot treat the disease we can at any rate treat the patient; if we cannot cure the lesion we can at any rate attack the symptoms. If we can relieve the patient of the symptoms which trouble him, he will care but little for the morbid lesion; if we can cure his disease—that is, discomfort—he will not much mind the disease.

We cannot cure myxedema, but we now know how to relieve its symptoms. We may hope for similar success hereafter in the treatment of granular kidney.

The objects we should have in view in treatment are:

1. To prevent the disease getting worse, if possible, and to relieve the damaged organ in every way possible. With this in view exposure must be avoided, as well as fatigue of either mind or body; the general health should be kept at its highest level; the diet should be appropriate; and, where feasible, the winter should be spent in a warm, dry, and genial climate.

2. To guard against the accidents specially likely to occur. These are failure of the

heart and rupture of vessels. With this object violent exertion must be avoided, as well as all excessive mental work and anxiety; the patient should lead an easy life, both physical and mental; and where unavoidable illness arises, such as a severe accident or acute pneumonia, if the weak spots are remembered much may be done to diminish the risks.

3. To counteract or relieve symptoms as they arise. Dr. West, has already drawn attention to the extreme variability of these symptoms, and the treatment must therefore be correspondingly various also; but it is often surprising when the cause upon which these symptoms depend has been recognized — that is to say, when granular kidney has been diagnosed—how much may be done to give relief.

Of drugs, there is none more useful than nitrate of pilocarpine given in small doses two or three times a day by the mouth, or in urgent cases *sub cutem*. Thus the headache, irritability by day and restlessness by night, vomiting and digestive disturbance, a foul tongue and a dry skin, may all rapidly yield to a dose or two of pilocarpine, and the patient be restored to comfort, or even threatening symptoms of uremia be removed. There is one noteworthy fact about pilocarpine in chronic renal disease, namely, that it often does not produce the sweating which under normal circumstances and in similar doses it causes, and yet without the sweating its effect is striking.

There is one line of treatment to which Dr. West says he wishes more particularly to refer, for it has not so far been investigated as fully as it deserves, and that is the treatment of chronic renal disease by means of renal extracts. He has already said that there is no positive evidence at present of the existence of an internal secretion in the kidney; yet the cachexia which develops in chronic renal disease is not at all unlike that which is met with in Addison's disease or even myxedema. Granular kidney also presents other resemblances with these diseases, in that the grave symptoms do not arise until the organ is very considerably diseased; in fact, as Bradford has shown, it is not until about three-fourths of the total kidney substance has been destroyed that life becomes impossible.

There was the same absence of conclusive evidence in the case of the thyroid gland until the administration of thyroid extract proved by its clinical effects that the symptoms depended upon the wasting of the gland. There can be no doubt clinically that the late symptoms of granular kidney do depend upon the disappearance of the glands, and it is therefore not at all improbable that the kidney has an internal secretion, though absolute proof is not yet forthcoming.

Renal extracts have not been used except in quite the latest stages of granular kidney at a time when probably the disease is too far advanced to be amenable to treatment at all. The subject is, of course, surrounded with difficulties; and yet if we are to do any good at all by this or any other method, we must attack the disease before it has reached its later stages, and before the nutrition and general cachexia are so pronounced.

The first question is whether the administration of renal extracts by the mouth has any effect at all. As has already been said, if pilocarpine be given by the mouth or *sub cutem* to patients with granular kidney, the dose which under ordinary circumstances would produce free sweating often fails to produce this effect. The following experience is one which Dr. West has had on several occasions:

A patient with granular kidney who had been taking nitrate of pilocarpine regularly was given renal tablets two or three times a day. The dose of pilocarpine had hitherto caused no sweating; but within twenty-four hours or so after taking the renal tablets sweating became marked, and followed each dose to such an extent that on some occasions it had to be stopped. As soon as this was done the sweating ceased. After a short interval the pilocarpine was repeated and the sweating returned. The pilocarpine was then continued and the renal tablets stopped, and the sweating again ceased. The administration of renal tablets, therefore, did in these cases modify nutrition in some way so as to permit the nitrate of pilocarpine to have its normal action.

The most striking instance of the effect of the renal tablets occurred in the following case:

A girl, aged thirteen, was under treatment for what appeared to be acute nephritis. After some weeks' illness she began to develop uremic symptoms; the amount of albumin increased considerably; the amount of urea fell to 0.8 per cent; there was a good deal of vomiting and abdominal pain, some diarrhea, and also some bronchitis. A little later headache set in, vomiting became more troublesome, and she began to have fits. Under

treatment the fits subsided, and in the course of a week or so she was in much the same condition as before the fits commenced. As she seemed to be going down hill, renal tablets were administered in the dose of five grains twice a day. Coincidently with this she began to improve; the quantity of urine a few days after the first administration increased and reached forty-seven ounces, the largest amount she had ever passed while under treatment, the usual average being not more than fifteen or twenty ounces. With the increase in the urine the amount of albumin greatly diminished and the edema began to disappear. In the course of a month the urine averaged 1012 specific gravity, forty ounces in amount, and not more than 0.5 per cent of albumin, and soon she was well enough to leave the hospital. Some months later she returned again in a condition of dropsy and chronic uremia. She again took renal tablets with great benefit, and left the hospital well, except for the albuminuria. A third time she was brought to the hospital with uremic convulsions, and died in a few hours.

Dr. West has had two or three other cases of the same kind, and in all the results have been the same, namely, an increase in the amount of urine and an improvement in the general condition. This improvement followed and appeared to be due to the action of the remedy.

The use of renal extracts is still in a purely experimental stage. Judging by the analogy of myxedema, it would be in the cases of chronic renal cachexia only that we should look for striking results, and this requires early and correct diagnosis. In acute uremia there is so little time to act that recourse must be had to other and more active measures.

TREATMENT OF HYPERPYREXIA IN RHEUMATISM.

The *Scottish Medical Journal* for February, 1899, contains an interesting article on this topic by Dr. LANGWILL. The main conclusions he draws from the consideration of the whole subject of hyperpyrexia in rheumatism are these:

1. That the condition is more prone to occur in the warmer months of the year, and apparently with greater frequency in certain years.

2. That while it is very difficult to estimate at all accurately the frequency of its occurrence, probably this is about .5 per cent amongst adult cases of rheumatism.

3. That the occurrence of hyperpyrexia in rheumatism is practically confined to cases of this disease in persons over fourteen years of age.

4. That the rare instances of hyperpyrexia which occur under that age are in cases of rheumatism which present the adult type of the disease.

5. That the absence of hyperpyrexia from rheumatism in children is probably to be explained as the result of the type rheumatism assumes in them rather than a mere question of the age of the sufferer.

6. That males show a much greater proclivity to the condition than females, which may possibly be associated with the greater strain habitually put upon their thermotaxic mechanism.

7. That the condition is most apt to occur in "first attacks" of rheumatism.

8. That persons who have once suffered from the condition would probably be apt to have a recurrence of it in any subsequent attack of the disease (although no case of such recurrence has previously been published).

9. That it may ensue at any stage in an attack of rheumatism, but probably the second week is the most common period of its occurrence.

10. That it may arise in even mild cases of rheumatism, severe rheumatic symptoms being no essential to its occurrence.

11. That the onset of hyperpyrexia, while occasionally without warning, has usually premonitory symptoms, the chief of which is delirium.

12. That cases of true rheumatism showing persistence of the pyrexia, in spite of full doses of the salicyl compounds, should be most carefully watched, since hyperpyrexia frequently ensues in such instances.

13. That sudden cessation of the articular pains without coincident fall of temperature should lead to the suspicion of hyperpyrexia, especially if attended also by the cessation of sweating.

14. That Maclagan's hypothesis that hyperpyrexia is due to paresis of the heat-inhibiting mechanism from exhaustion in its attempt to control the excessive heat-production of rheumatism is the most feasible theory yet put forward in explanation of the condition, satisfactorily accounting for the more frequent occurrence of hyperpyrexia in adults than in children.

15. That the absence of rheumatic hyperpyrexia in children is a strong argument

against the view that this condition is due to visceral complications, since it is especially in children that these visceral manifestations occur, and it is just in those cases that hyperpyrexia is not found.

16. That in view of the resemblance in several respects between rheumatic hyperpyrexia and "diabetic coma," further investigation of this subject might possibly throw fresh light upon the pathogenesis of both conditions.

17. That while the mortality of rheumatism is only about three per cent, hyperpyrexia is probably one of the most important immediate causes of death in this disease.

18. That the mortality of hyperpyretic cases is very high—probably over fifty per cent—but statistics are very variable because

19. The mortality is greater the higher the temperature before treatment is begun; and

20. It is also greater amongst cases treated by means of antipyretic drugs alone.

21. That treatment by the application of cold in one of its various forms is the only justifiable method in cases of hyperpyrexia in rheumatism.

22. That this should be adopted even in cases apparently moribund, and even although visceral complications may be present.

23. That while there may possibly be some risk of congestion of internal organs as a result of this method of treatment, this does not justify the neglect of what is practically the only remedy for an otherwise fatal condition.

24. That the greatest care should be taken to prevent collapse ensuing in the patient as a result of the treatment by cold, which should be stopped entirely before the temperature falls to normal.

25. That antipyretic drugs, while practically useless in the treatment of hyperpyrexia when present, may perhaps be of some service in preventing a recurrence of this after the temperature has once been reduced by means of cold.

26. That in obstinate cases of recurrent hyperpyrexia the method of treatment by "disintoxication of the blood" adopted by Barré may probably be of service as an adjuvant to the treatment by means of cold.

27. That greater attention should be paid to the prophylaxis of rheumatic hyperpyrexia, and that more prominence should be given to the advantage of commencing treatment by cold at an early stage before excessive temperatures are attained; in other words, the general condition of the patient, rather than the mere height of his temperature, should be the determining factor for commencing the treatment by cold.

28. That early and complete subjection of the patient to antirheumatic treatment would probably have some influence in preventing the occurrence of hyperpyrexia.

NOTES ON COCAINE.

JENNEY, of Deadwood, contributes some of his views in regard to cocaine to the *Medical Record* of March 25, 1899, and considers its influence upon the skin at the beginning of his paper. He believes that when an aqueous solution of cocaine is applied to the skin, a portion of the drug is absorbed and a peculiar sensation of coolness pervades the part, and if the action is long continued over a considerable surface the amount absorbed may become so great as to cause in some cases physiological symptoms resembling those described as produced by chewing the leaves of the coca plant. Although the quantity of cocaine so applied to the skin may be many times the maximum dose which may be given internally or hypodermically with safety, no toxic action takes place. The local anesthetic effects peculiar to cocaine are somewhat modified; sensation continues in the surface treated with the solution even after the lapse of twenty to thirty minutes. In the treatment of bruises resulting from a blow or similar cause, the action is most strongly marked; the discoloration and congestion of the tissues are rapidly reduced to the normal color of the skin, evidently by the constriction of the blood-vessels; inflammation and pain subside more gradually, and the pain seldom returns after the anesthetic effect of the drug has ceased. If the *locus* of the pain is near the surface, relief is usually speedy, not infrequently all pain subsiding permanently in three or four minutes; where more deep seated, the action is retarded and less often permanent in its effects. It is then necessary to keep the surface of the body directly over the seat of the pain wet with successive applications of the solution, until ten or more grains of cocaine hydrochlorate has been used. In such cases relief from pain comes very gradually, and may probably be due to the physiological action of the alkaloid through the circulation, rather than to cocaine anesthesia by direct absorption. This view is confirmed by a few instances in which the amount of the drug applied to the skin was from fifteen to twenty

grains, the patient displaying a high state of nervous excitement much resembling the effect produced by an excessive amount of green tea. Respiration was increased and the pupils dilated, without the manifestation of any of the distinctly toxic symptoms of cocaine. It is noteworthy that these physiological symptoms, with the absence of toxic action, are those recorded as resulting from chewing the leaves of the *Erythroxylon Coca*.

The strength of the solution, while somewhat influencing the rate of absorption of the alkaloid by the skin, does not appear to be an important factor. A solution of two to four per cent, or from ten to twenty grains of cocaine hydrochlorate per ounce of water, has been found to give good results. It is best that the solution should be freshly prepared, as it undergoes decomposition in a few days.

The solution may be applied by painting the surface of the skin with a camel's-hair brush, or a cloth, or a thin sheet of absorbent cotton wet with the solution may be placed in direct contact with the skin over the part affected. All absorption ceases if the surface becomes dry, so that it is necessary to paint the spot repeatedly with fresh solution or to wet the cloth with water to replace loss by evaporation due to the heat of the body.

The action varies in some degree with samples of cocaine hydrochlorate of different manufacture; the crystallized drug, put up in sealed bottles, is more rapidly absorbed by the skin than the preparations (which Dr. Jenney has tested) that are sold in bulk.

The therapeutic action of cocaine upon the human skin appears to have escaped the attention of investigators. Most of the standard works on the subject either omit any mention or state that the drug is not absorbed.

Cocaine solution may be employed as above indicated in the treatment of bruises, sprains, and many local inflammations of like character. As a "pain paint" in the quick reduction of bruises, it is doubtful if it has any equal. It may also be used as a preliminary application to reduce inflammation in surgical treatment of dislocations and fractures.

In neuralgia, when the nerve affected is situated near the skin, the local application of a sheet of absorbent cotton saturated with cocaine solution will in some cases give almost immediate relief. It is also worthy of trial in pleurisy, pneumonia, and peritonitis; a gradual palliative action has been observed to take place by prolonged application of a six-per-cent solution, notwithstanding the deep-seated *locus* of the inflammation; the action, in part at least, being probably due to the absorption of the alkaloid into the circulation. In like manner the dull, persistent pain in the lungs in tuberculosis is in some instances alleviated by the repeated application of cocaine to the chest. Small and painful wounds where the skin is practically unbroken may be treated directly with cocaine without danger of too rapid absorption of the drug. In a wound in the foot caused by stepping on a rusty nail, wetting the bandage with cocaine solution reduced the inflammation and quieted the pain, the wound healing with comparatively little suffering to the patient.

Painting with cocaine the marks due to the hypodermic syringe causes them to disappear quickly, from the constringing of the blood-vessels.

Caution should be exercised in the external application of cocaine in cases in which the surface of the skin is not intact, to open wounds, or highly inflamed surfaces, lest absorption of the toxic alkaloids should occur.

The rapid absorption into the circulation of the toxic alkaloids when cocaine is administered internally affords an explanation of the danger incident to the employment of more than the smallest doses administered through the mouth, rectum, or urethra; to the introduction beneath the skin by the hypodermic needle; or to the application of a solution of the drug to any mucous surface.

There are some evidences in the action of a solution of cocaine hydrochlorate when applied to the human skin which indicate that the drug as supplied to the trade may not consist of a simple substance, but of a mixture of at least two alkaloids—one, rapidly absorbed by the skin, is non-poisonous and possesses valuable properties in the reduction of local inflammation and pain; the other, to which is probably due the toxic action, is not absorbed and is left as a residuum on the surface of the skin. In short, it seems that when wet with a dilute solution of cocaine hydrochlorate, the human skin apparently dialyzes the mixed alkaloids, permitting the harmless alkaloid to be absorbed, separating it from the toxic principles. In an experiment a thin sheet of absorbent cotton three inches square was saturated with a six-per-cent solution of cocaine and applied to the skin of the patient for half an hour,

the cotton being kept moistened with water to replace the loss by evaporation. When there was no longer any sensation noticeable from the absorption of the drug, the cotton was washed with water and the washings were evaporated in a watch-glass by steam heat. The residuum was a white, solid substance, having an intensely bitter taste and producing an almost instantaneous sensation of numbness when a small particle was applied to the tongue.

The variable action of cocaine noted by investigators, and the erratic poisonous action, in certain recorded cases of even the smallest doses when administered internally, may be explained by the irregular composition of different samples of the drug; some containing a larger portion of the highly toxic alkaloids, while other preparations have a greater percentage of the non-poisonous alkaloids.

Should the suggestions here put forth respecting the composition of cocaine be confirmed by chemical research, it is not improbable that other animal membranes will be found on experiment to act like the human skin in separating by dialysis the valuable alkaloid from the toxic principle.

There is thus hope that cocaine may be in the future prepared free from all poisonous principles; should this hope be realized, Dr. Jenney suggests that cocaine be retained as the name of the valuable alkaloid, and that lethane be the designation of the toxic element.

THE QUESTION OF INFLATING THE BLADDER WITH AIR PRELIMINARY TO THE BOTTINI OPERATION.

A discussion has been going on among surgeons as to the question which heads this item, and as the matter is of great importance to those who perform this operation we take pleasure in quoting from an article by LEWIS, of St. Louis, in the *Medical Record* of March 25, 1899.

In a discussion of the Bottini operation for senile hypertrophied prostate, held at a meeting of the New York Deutsche Medicinische Gesellschaft, May 2, 1898, Dr. Freudenberg called attention to a feature of the operation that might prove dangerous in certain cases—indeed, that had proved disastrous in one of his own; that is, when the bladder is empty, with its mucous membrane lying in folds, there is liability of the heated platinum blade catching in one of the folds and burning through it, or even through the bladder wall, with peritonitis and death as a result. To obviate this, Dr. Freudenberg recommended that the bladder be at least partially filled with boric acid solution in order to smooth out the membrane and its folds.

In carrying out this suggestion in a subsequent operation on a patient on whom Dr. Lewis had already operated with the bladder empty, he found that the pain was enormously increased—was, indeed, unbearable—whereas in the previous operation on the same patient it had been of small moment. He therefore substituted air as a distending medium, with the effect of reducing the pain to practically nothing. Cocaine anesthesia was used in each instance.

It appeared probable to Dr. Lewis that the superheated boric solution in the neighborhood of the red-hot blade had caused a scalding effect, with the production of the exaggerated pain. From the result of an experiment he was made doubtful of the expediency of this method, even aside from the question of the amount of pain which it might induce. On placing the blade in a cup of water and turning on the electric current, the water would be made to boil, but the blade could not be brought to a red heat, no matter how strong a current was used.

Dr. Freudenberg believes that by causing the incisor to hug the prostate closely, the solution may be excluded from coming in contact with the blade. This Dr. Lewis thinks very doubtful, as the probability is that when the blade is drawn from its niche an opening is made for the ingress of the solution, interfering with the working of the instrument, as well as producing an unnecessary scalding effect.

Dr. Lewis' use of air inflation in connection with this operation was mentioned in the *Medical Record* of November 12, 1898, page 718, and the *Philadelphia Medical Journal* of December 10, 1898. In an able and gratifying report of his cases Dr. W. Meyer, of New York, writes as follows on the subject of inflation: "Lewis, of St. Louis, recently recommended the advisability of filling the bladder with air. One of his patients, on whom he had to operate a second time, maintained that there was no pain whatever after air had been injected into the bladder, while when it had been filled with water previous to the first operation the pain was considerable. I should not, however, indorse vesical inflation with air. The experiments of Lewin and Goldschmidt have shown that, owing to some unforeseen gaping of the ureteral openings, the

air may ascend from the bladder into the pelvis of the kidney and then pass, by way of the renal vein, into the general circulation. Death from an aerial embolism into the pulmonary artery may set in."

On looking up the reports of the experiments of Lewin and Goldschmidt, Dr. Lewis says he found them to be in effect as follows (the conclusions of the authors): "Air, being injected into the bladder (of a dog), in case it ascends into the ureter produces the following effects: The kidney enlarges and turns somewhat on its axis. With a fine, peculiar noise air-bubbles pass from the direction of the kidney hilus into the renal vein. There is noticed a slight vibration; in a short time the blood is forced out and the vessel resembles a round empty tube of frosted ('milch') glass. The bubbles pass into the vena cava, fill it, replacing the blood, and, after a few spasmodic motions of the extremities, the animal dies. On opening the chest, one can see how the heart still works for a time with spasmodic efforts; through its thin anterior walls one can further observe how by the activity of that muscle the blood is churned into foam, intermixed with air as it is. We have clearly established, therefore, a transportation of air from the urinary channels into the blood-vascular system."

Dr. Lewis says, on reading so graphic a description of this remarkable and acrobatic performance, he was staggered. So imminent a peril as this to beset the lives of patients being operated almost daily by Dr. Howard Kelly and his disciples, in the cystoscopy of women; so many undergoing its dangers at the hands of the followers of Dr. Bristow, who advocated the employment of air for vesical distention in ordinary epicystotomy, and whose advice has been accepted in the practice of many prominent surgeons of this country, is difficult to contemplate. He was reassured to some degree, however, by remembering the results of experiments conducted by Dr. H. A. Hare in 1889, in which the old idea of the extreme harmfulness of air in the circulation had apparently been exploded. In these experiments upward of seventy dogs had been subjected to air injections.

From this series of experiments the author deduced the conclusion that "death never occurs from the entrance of air into the ordinary veins of the body unless the quantity be enormous—from one to several pints, a quantity which cannot enter unless deliberately sent in by the surgeon."

However, being desirous of arriving at an unbiased and correct conclusion regarding the vesical inflation question, Dr. Lewis carried out the following experimental steps on a dog. They were done with the assistance of Dr. H. I. Nietert, superintendent of the City Hospital, Dr. R. Amyx, assistant superintendent, and Dr. Greiner, all of whom watched critically the various stages of the procedure, and agreed that no opportunity was overlooked for getting a confirmation of the results of Lewin and Goldschmidt; but, as will be seen, not a particle of evidence in confirmation of them was obtained.

The dog was a half-grown mongrel, weighing about nine pounds. Under chloroform anesthesia the abdomen was opened from symphysis to ensiform cartilage, and the intestines were drawn aside, giving a perfect view of the field of observation. With a rubber bulb syringe the bladder was completely distended with air, after withdrawal of its urinary contents. The penis was ligated, preventing the escape in that direction of the injected air. With the left ureter, kidney, and renal vein plainly exposed to view, firm compression was made on the distended bladder, and continued for fifteen minutes. No distention of kidney pelvis or of ureter ensued. The position of the bladder was changed in various directions, to afford the best opportunity possible for the escape of the air into the ureters, but with the same negative result. Each of the onlookers tried various manipulations of the bladder, but without succeeding in getting the air up into the ureters (both ureters were watched in the maneuvers); and finally sufficient compression was used to rupture the bladder wall, without overcoming the integrity of the vesicoureteral valves.

Next a hypodermic needle was introduced through a ureteral wall, and a syringeful of air was sent toward the kidney pelvis. This latter was distended to a certain degree, which condition was maintained for five minutes or more by compression of the ureter below it. The renal vein was closely observed. Not a bubble appeared in it, nor did it undergo a single change suggestive of inflowing air. The kidney position was changed in several ways, to facilitate the "filtration" of the air through it, but still without result.

In order to make this feature of the experiment satisfying to even the most skeptical, a slit was made in the wall of the ureter, a cannula was introduced through it, and the bulb

syringe (Politzer air-bag), attached to the outer extremity of this latter, enabled them to make forced air-pressure into ureter and hilus, sufficient almost to burst them. This pressure was likewise maintained for ten or more minutes; yet no bubble appeared in the renal veins and no "milk-glass" appearance was assumed by it—in fact, there was no transportation of air from urinary channels to renal or other vascular system. And meanwhile the dog slept serenely.

Next, in order to see what effect would follow if the air should be transferred into the venous system, Dr. Lewis injected three hypodermic syringefuls in rapid succession into a mesenteric vein. The air could be plainly seen to shoot along toward the center, indicated by the displaced blood. The dog showed no disturbance in breathing as a consequence, but slept placidly and continuously for a half-hour thereafter, and was awakened when we killed him with a double dose of chloroform.

From the above there seems little probability that any noxious effect would ensue in a Bottini operation with air inflation, even if there should be "some unforeseen gaping of the ureteral openings." The kidney makes an impermeable barrier against the entrance of air into the circulation from that source; and even if it did not, the injurious effects of such transportation are problematic, to say the least. As Dr. Hare says, whereas there have been numerous cases reported in which sudden death occurred during operations in which veins were opened, in the majority of them the cause of death has been guessed at and not proved as being due to the entrance of air. He asserts that not a single instance has been proved to be due to that cause.

In a recent private communication to Dr. Lewis on the subject under discussion, Dr. Hare writes: "Even if by reason of disease the ureteral valvular protection were removed, it seems incredible that, should the air pass up the pelvis to the kidney, it could enter the renal vein and so get into the general circulation."

But to pass from speculation and experiment to the evidence furnished by the clinic. Dr. Lewis says he wishes to present the testimony of operators in this field. With a view to obtaining this, the following note was recently addressed to several surgeons: "Will you kindly inform me: (1) If you have made use of air inflation of the bladder in connection with epicystotomy or other operative procedure. (2) If you have ever met with any injurious or disastrous effect therefrom. (3) If you have ever heard of any such in the practice of other surgeons (names unnecessary)."

Responses were had from Drs. W. W. Keen, Philadelphia; J. B. Murphy, Chicago; Howard A. Kelly, Baltimore; John H. Brinton, Philadelphia; William T. Belfield, Chicago; J. William White, Philadelphia; John P. Bryson, St. Louis; and Maurice H. Richardson, Boston.

There is such a unanimity of sentiment in these expressions that it is not necessary to quote them separately. In response to the first question there are affirmative answers from five of the gentlemen: "Yes, many times," from Drs. Kelly, Belfield, and Bryson, and simply "Yes" from Drs. Keen and Brinton. The other three gentlemen have not used air inflation. In response to the second and third questions "No" is the unanimous answer. Dr. Lewis says that in the several instances in which he has used air inflation he has seen no indication of trouble of any kind from it, nor has he ever heard of any in the practice of any surgeon.

It seems altogether probable that if vesical inflation had ever given rise to the disastrous consequences feared, it would have come to the knowledge of some of the operators mentioned above, even if it had not occurred in their practice.

From the evidence adduced it would seem unjust, Dr. Lewis believes, to rest an objection to vesical inflation on the ground of possible danger.

THE ETIOLOGY AND TREATMENT OF NEURASTHENIA; AN ANALYSIS OF THREE HUNDRED AND THIRTY-THREE CASES.

COLLINS and PHILLIPS in the *Medical Record* of March 25, 1899, after writing extensively upon this subject, tell us that in their opinion the medicinal treatment of neurasthenia is the least important duty of the physician, though it is oftentimes difficult to convince the patient of this, and physicians as well. Symptom medicines are invaluable to meet certain indications, and disease medicines assist in overcoming certain organic conditions, such as anemia; but despite this the majority of neurasthenic patients would reach the goal of recovery just as surely and speedily if drugs were entirely discarded. At least it may truthfully be said that it is oftentimes as important to forbid the patients all medica-

tion as it is to prescribe it. Neurologists will probably agree that the majority of patients who come to them for advice and treatment, after they have been under treatment by their family physician or desultorily by a number of physicians, are so thoroughly bromidized that this state demands treatment. Dr. Collins does not mean to say that the bromide salts are not oftentimes of signal benefit to relieve certain distressing symptoms, such as head pressure, cardiac palpitation, abdominal fluttering, etc.; but they should never be given continuously, promiscuously, or without special indication. Although the Pharmacopœia contains no drug that has special virtue to "strengthen" the nervous system or to restore its equilibrium when the balance is once disturbed, there are certain drugs which, by creating an appetite, facilitating digestion and assimilation, forcing oxidation and elimination, and by adding to the constituents of the blood, are serviceable when such indications exist. The simple bitters and stomachics can be given for a short time with a considerable confidence that they will cause a greater relish for food. Arsenic, nux vomica, and quinine oftentimes not only create a greater desire for food but seem to have a general tonic effect, particularly upon the muscular system. Cod-liver oil, which is supposed to be of especial service in the treatment of neurasthenia, has no other virtue than to provide an easily digested carbonaceous food.

In anemic individuals suitable preparations of iron and arsenic, alternated or combined with the simple bitters, must be given. In administering iron it should never be forgotten that it has been proven experimentally that the quantity which the blood will take up stands in no relationship to the amount administered. Not infrequently beneficial effects follow repeated inhalation of oxygen. This procedure not only affords a general fillip to the system, but has a desirable mental effect. In the use of arsenic and quinine it is well to bear in mind that the former has a tendency to produce disturbance of the stomach and intestines which may have a very distressing mental effect upon the patient; while the latter, if given in other than very small doses, is sure to produce ringing in the ears and vertigo, which the patient will be likely to interpret as most disastrous manifestations.

The administration of aphrodisiacs in sexual neurasthenia is conceived in error, and should never be tried except for the mental effects. Drugs that make powerful appeal to the mind by insulting one of the special senses—such as valerian, for example, particularly when given with assurance that it will be beneficial—are oftentimes of great comfort to the patient, and thereby useful. Hypnotics are rarely necessary when rest and exercise, hydrotherapy, and massage are properly and faithfully utilized. It is oftentimes necessary to give one of the simpler hypnotics a few times, in order to secure sleep until the physical measures just mentioned have time to become effective. They should be given in sufficiently large doses to make their effect decided, so that the patient may be impressed that a medium is readily at hand that can easily cope with the insomnia.

Reference has already been made to the absurdity of depending upon local treatment alone to cure neurasthenia, whether such treatment be directed to the prostate, the eye muscles, the uterus, or the stomach. All these organs are very liable to reveal considerable disorder of function in neurasthenia, but so does every other tissue or organ of the body in varying degree. They all need treatment, and thus it is that hydriatic procedure, diet, rest, exercise, etc., have proven to be the really trustworthy therapeutic agencies. Occasionally neurasthenia occurs as a result of rectal abscess and fistula, of enlarged prostate, of prolonged and the excessive use of ill-balanced eye muscles. In every such case the effort should be made to rid the patient of these evident infirmities; this is tantamount to saying that the causal treatment of neurasthenia should never be neglected. If such treatment suffices, the patient and the physician have good cause for mutual congratulation. Unfortunately, however, it does not suffice in about ninety per cent of the cases, and it is unwise to neglect the ninety merely to reach the ten.

THE PATHOLOGY OF THE THYROID GLAND.

MURRAY, of England, to whom we owe so much in the study of thyroid therapy, is delivering the Goulstonian Lectures for 1899 and considering the thyroid gland. In *The Lancet* of March 11, 1899, he tells us that in advanced cases of myxedema the first stage of the treatment must be carried out with great caution, especially if any symptoms of degeneration of the cardiac muscle, such as attacks of syncope, dyspnea on exer-

tion, feeble or irregular pulse, or weak heart sounds, are present. Under these circumstances the patient should be confined to bed at first and only small doses of from one-quarter to half a grain of thyroid given each night. This dose if well borne may be gradually increased up to ten minims. If not confined to bed these patients are apt to make use of their returning vigor too soon, before the heart has had time to recover and adapt itself to the altered conditions brought about by the treatment. These advanced cases in which little exercise has been taken for months or even years are now rare, but in the early days of the treatment the importance of this caution was painfully impressed upon Dr. Murray by the deaths of two patients from syncope who had cardiac disease, after they had practically got rid of the symptoms of myxedema. Any undue acceleration of the pulse up to 90 or 100 indicates that a reduction should be made in the dose, and any signs of cardiac failure must be met by giving stimulants and digitalis.

By far the greater number of cases which require treatment are now seen in the early stages of the disease before any cardiac symptoms have developed. In these, the patient is able to go about as usual, though it is advisable to avoid any unusual exertion during the first stage of the treatment. A daily dose of ten minims of thyroid extract may be given each night from the beginning and increased to fifteen minims at the end of a fortnight, if decided improvement has not already taken place. Any marked increase in the frequency of the pulse or rapid loss of weight is an indication for at once reducing the dose. Symptoms of gastrointestinal catarrh have sometimes arisen during this first stage of the treatment, especially if the raw gland has been used. They rarely if ever appear if a suitable preparation of the gland is used instead. If they do occur, the thyroid treatment should be stopped until they have passed away, and then smaller doses should be given, when the treatment is again commenced. In many cases no other treatment beyond the daily dose of thyroid extract is required. When, however, there is a well marked anemia it is a good plan to give iron as well as thyroid extract. Five grains of dried sulphate of iron in a pill twice or thrice daily after meals is a suitable form in which to give it.

As soon as all the symptoms of myxedema have disappeared the first stage of the treatment is completed. The second stage then commences and must of necessity last as long as the patient lives. During this stage the patient must continue steadily to take a daily dose of thyroid extract equivalent to the daily output of the gland before it became diseased, or at any rate of that part of it which has become functionless. It is important that patients should understand this and that good health can only be maintained by the continued use of the remedy. To insure this it is often better to describe the remedy as an essential part of the daily diet and not as a medicine, so as to overcome the objection some persons have to taking what they regard as a medicine for such long periods. Of course an occasional intermission of the treatment for a week or so has little or no effect, but if no thyroid extract is taken for three or four weeks the temperature falls one or two degrees below normal, and the myxedematous swelling of the face begins to develop again. If the extract is omitted for a longer period still all the original symptoms gradually reappear, till at the end of three or four months the condition will be much the same as it was before any treatment was adopted. The most suitable dose for the second stage of the treatment is, generally speaking, ten minims of the extract given once a day. If after a time any slight symptoms of myxedema reappear, the permanent dose should be increased to twelve or fifteen minims. In none of Dr. Murray's cases has it been necessary to give more than ten minims; in a few cases this dose is too large, as after a time it produces acceleration of the pulse. The permanent dose has then to be fixed at five or seven minims a day.

In doubtful cases of myxedema thyroid extract may be given as a means of diagnosis. For this purpose a dose of ten minims should be given daily for three or four weeks. If the symptoms steadily diminish they are the result of thyroidal disease; if, on the other hand, no improvement takes place they are due to some other cause. This test is of great use in distinguishing some of the cases with anemia and subcutaneous swelling from cases of anemia with ordinary obesity, which they often closely resemble.

When the treatment of a well marked case of myxedema is carried out on the lines just indicated, very definite and interesting results are soon obtained. One of the earliest signs of improvement is in the return of the temperature to the normal level. This is illus-

trated by one case, in which the temperature before treatment ranged from 95° to 96° F., whereas during the second, third, and fourth weeks of treatment it varied between 96° and 98°. As the temperature rises to normal the former sensitiveness to cold is lost and the frequency of the pulse increased. The most striking changes are those which take place in the skin with its appendages and in the subcutaneous tissues. The myxedematous swelling gradually disappears from all parts of the body, so that the face and hands once more assume their natural appearance, and the free movement of the limbs, which has been considerably hampered by the swelling, is regained. The reduction of the swelling is accompanied by a loss of weight which may amount to as much as two or even four stones. The skin, which as a result of the removal of the swelling may for a time remain loose and wrinkled, becomes warm and moist owing to the renewal of the secretory activity of the sebaceous and sweat glands. Not infrequently there is some desquamation, which may occur in fine scales or in large flakes from the palms of the hands and soles of the feet, as observed by Byrom Bramwell. The hair follicles resume their proper function, so that even where there has been complete baldness a good growth of hair is developed in the course of six or twelve months. The feeling of lassitude passes away, and as a result of this those who before treatment could barely walk a mile are enabled to walk long distances, climb mountains, and undertake various other forms of exercise. Mental processes become more active, the memory improves, and the hallucinations disappear. In some cases in which actual insanity had occurred, it has also been cured. If albuminuria without actual renal disease has been present it disappears, while the amount of urine is increased. The observations of Ord and White show that the total amount of nitrogen eliminated is increased and that this increase is almost entirely due to the increase of urea in the urine. At first the amount of urea excreted may not only equal but actually exceed the normal average quantity. The number of red corpuscles in the blood increases. In patients who have not reached the menopause menstruation returns and takes place regularly even when there has been amenorrhea for several years. In fact, the myxedema is entirely cured, though the fibrosis of the thyroid gland remains unaffected by the treatment.

TREATMENT OF CRETINISM.

We have already quoted from MURRAY'S lecture in *The Lancet* of March 11, 1899, upon the thyroid gland. The results of athyroidism in young animals and children are more serious than in the adult owing to the arrest of development. The treatment of a cretin consequently presents a more formidable task, but the results are in some respects even more interesting than those just described in myxedema. Murray again points out the importance of carefully considering the possibility of the presence of disease or lack of development of the thyroid gland in every case of arrest or delay of development in children. In all such cases it is important to look for slight signs of cretinism. There are of course other causes of arrest of growth, such as achondroplasia, but Dr. Murray has seen several cases where the ordinary symptoms of cretinism were not distinct and might easily escape observation if not searched for carefully, in which the rapid improvement following thyroid treatment has proved that the arrest of development was due to thyroidal insufficiency. The importance of early diagnosis in such cases lies in the fact that the earlier the treatment is commenced the better prospect there is of normal development of the central nervous system. Experience has already shown that in cretinism of some years' duration, rapid as the improvement in the physical condition may be, the intellectual development is much slower, so that when treatment is commenced late it is doubtful if the latter will ever advance as far as when treatment is started early. If any doubt exists as to the diagnosis it is a good plan to carry out the treatment for one or two months. If no distinct improvement takes place the want of development is not due to cretinism, for in other forms of arrested growth the treatment has comparatively little effect, though it is worthy of trial.

The treatment of early cretinism is carried out on the same lines as the treatment of myxedema in the adult. During the first stage gradually increasing doses of thyroid extract are given till the symptoms disappear. It is advisable in treating a small cretin to begin with a dose of one or two minims each evening, gradually increased by the addition of one minim each week or fortnight until a dose of five, seven, or ten minims, according to the size of the child, is reached. As the child gets older it may be found necessary to increase the daily dose

from time to time by the addition of another minim. If too large doses are given the pulse becomes too frequent, pains may be felt in the limbs and elsewhere, the temperature may rise above the normal level, and purging may follow. As in the adult, the treatment must be continued as long as the patient lives. As soon as the symptoms have disappeared it is only necessary to determine the most suitable permanent dose and to insure its uninterrupted administration.

In the treatment of cretinism which has lasted for some years we have a much more difficult task to perform, but very good results can be obtained. Even when the disease has lasted ten or twelve years, provided the patient is not more than eighteen or twenty years old, a remarkable amount of growth can still take place. In these cases from three to five minims of thyroid extract may be given at the commencement and increased according to the progress observed. Even in cases in which the symptoms had lasted for twenty or twenty-five years some growth and marked improvement in all the symptoms take place. In cases of long duration attacks of syncope are not uncommon. In such the earlier part of the treatment is more safely accomplished by keeping the patient in bed and giving small doses of one or two minims only at first.

When the necessary stimulus to the normal metabolism of growth is thus supplied to a cretin in the early stages of the disease the symptoms disappear. The swelling gradually diminishes in all parts of the body. The tongue, lips, and nose diminish in size, so that the appearance becomes natural. The skin becomes soft and moist and the temperature rises to normal. Growth, which at this early stage will only have been partially arrested, starts afresh. If the treatment is continuously carried on in such a case from the earliest time in which the disease is recognizable there seems no reason to doubt that ultimately the child will grow up into a fully developed healthy adult, who, however, would of course at any time develop symptoms of myxedema if his supply of the extract was discontinued. The intellectual development is always much slower than the bodily growth and general improvement in all other respects. The shorter the duration of the symptoms has been at the commencement of the treatment the more rapid the improvement in the mental condition, and Dr. Murray thinks it is only in cases in which the treatment is started early that we can expect normal intellectual development to take place. In cases of some duration it is important that a special education should be carried on at the same time as the treatment, in order that the patient may be able to make the most of the renewed cerebral activity.

THE TREATMENT OF OZENA WITH SPECIAL REFERENCE TO CUPRIC ELECTROLYSIS.

M'BRIDE writes in the *Edinburgh Medical Journal* for March, 1899, upon this novel theme.

According to Moure, Garrigou Désarènes was the first author who proposed the employment of electrolysis. He, however, applied only one pole to the surface of the nasal mucosa, while the other rested upon the neck or some other indifferent part. His method was followed in a more or less modified manner by Delavan, of New York. Then Jouslain suggested interstitial cupric electrolysis, in an article which unfortunately has not been accessible to Dr. M'Bride, but which Moure states was communicated to a French scientific society in 1892. This method of treatment was not apparently referred to again until 1895. Cheval then described it, and at the same time recorded ninety per cent of cures, and in seventy of his cases attained this result after a single séance. His paper was communicated to the Society of Belgian Laryngologists and Otologists, and later this body appointed a committee of four to inquire into the effects of cupric electrolysis. Seven cases were treated by Cheval, and in none of them could the members find any improvement. In 1896 Bayer gave a long account of the method and its results, which, according to him, were extremely good in a large proportion of cases. During the following year Réthi expressed the opinion that the benefits obtained from cupric electrolysis were greater than those derived from any other method of treatment.

Brindel, at the suggestion of Moure, undertook the treatment of thirty cases in the clinic of the latter. He found that in every instance the nasal affection was modified for some days; the mucosa became swollen, red, and congested; the yellowish-green thick crusts no longer formed on the side operated upon, but in their place sticky mucus, sometimes tinged with blood, was found, while fetor disappeared. Brindel, however, observed that relapses often occurred after from one to eight weeks. Nevertheless, in ten cases

permanent benefit followed the treatment. In none of these, at the time of writing, were there either crusts or odor, the patients having been under observation from three to eleven months.

The latest work upon cupric electrolysis with which Dr. M'Bride is acquainted emanates from Gouguenheim and Lombard, who arrive at the conclusion that cupric electrolysis has a definite action on ozena, causing disappearance of fetor, but that it is not possible to say that the result will be permanent.

Dr. M'Bride says he does not think that cupric electrolysis has yet been touched upon in English literature, and with one exception its use seems to have been, so far, confined to Belgium and France. Struck by the preponderance of favorable evidence, he began to experiment with this treatment in 1897, and gives his results briefly.

The strength of current used varied from three to ten milliamperes, rarely exceeding the latter. Cocaine was used in most if not in all cases, and after cleansing the nostrils the copper needle attached to the positive pole was inserted into the inferior or middle turbinate, sometimes into the tissues lining the middle meatus, while the platinum (or steel) needle was passed into the septum. Usually the patients complained of little pain, nor did they experience disagreeable after-effects. A private patient on whom Dr. M'Bride recently performed electrolysis, however, suffered a good deal from neuralgia, swelling of the eye, and general disturbance for a day or two. As a rule, each sitting lasted about ten minutes. As he has stated before, the cases quoted were not selected by him, but it is just possible, nevertheless, that a process of natural selection may have been brought about. They all occurred in out-patients, and it is quite conceivable that the majority of those who were benefited repeatedly presented themselves, while there may have been an opposite tendency on the part of those who received little relief. It will be noted that out of the eight patients whose histories he gives briefly four were practically cured for long periods, extending to eighteen months. In one there was marked improvement; in another case apparent cure for some months, but then syringing had to be resumed; while in two cases there was only improvement for a few weeks. The former was shown to the audience, and Dr. M'Bride thinks that the fetor has been practically cured, but the patient complains of the discomfort caused by crusts accumulating in the nasopharynx and larynx.

In the last sentence, when Dr. M'Bride uses the term "cure," he says he refers to the fetor, for in most of the cases the atrophy remained as before. He is quite prepared to admit, as above stated, that the results achieved in these seven cases may have been beyond what we can reasonably expect to average. Still they prove that in cupric electrolysis we have a valuable therapeutic resource, probably the most valuable that has yet been suggested, for ozena. The rationale of the treatment is still uncertain, but probably the formation of copper salts at the positive pole has at least as much effect as the electric current.

THE OUTLINE TREATMENT OF MIGRAINE.

In *La Presse Médicale* of February 11, 1899, GALLOIS stated that in gouty migraine depending upon uric acid he believes that the constant use of large doses of bicarbonate of sodium is advisable, and directs the patient to take a saltspoonful of bicarbonate of sodium in each quart of water, which quantity shall be taken in each twenty-four hours. He states that three cases of inveterate migraine have been treated in this manner with excellent results.

WHAT TO DO AND WHAT NOT TO DO IN THE TREATMENT OF CERTAIN OF THE MOST FREQUENT EAR AFFECTIONS.

We have already abstracted part of an article with this title, by HAUG, which is published in the *Eye, Ear, and Throat Journal* for January, 1899. He further tells us that atresia of the meatus may occur in injuries or ulceration of its walls and especially after burns. In such cases strips of gauze must be introduced into the meatus past the seat of the lesion, after previous moist or dry cleaning of the meatus. These are much more effective than perforated drainage-tubes and supplant mechanical dilators, tents, etc.

Eczema may cause agglutination and eventually atresia. This is best prevented, and the eczema at the same time treated, by strips of gauze impregnated with ointment (diachylon ointment, oleo cocti, zinc ointment, equal parts). Even when nearly well the tamponade must be continued either dry or after painting with

℞ Naphthol B, 0.1;
Acid salicyl., 0.5;
Alcohol, 35.0;
Glycerin, 15.0.

until the skin is smooth and scales have disappeared.

The air-douche and its proper performance will now receive our consideration.

First, it cannot be too urgently insisted upon that all the instruments that are used (catheters, nasal olives, etc.) should be sterilized, to avoid syphilitic or other infection. As to the air-douche itself, there is no doubt that in it, whether carried out by the simple Valsalva procedure, by Politzer's method, or by the catheter, we have one of the best means of improving and curing a large portion of the defects of the hearing apparatus which depend upon a disturbance of the middle ear. On account of their easy accomplishment, Valsalva's and Politzer's procedures have become the property of the laity. Catheterization requires a certain skilfulness which is usually confined to the physician. While it is probably in itself a matter of congratulation that a good method of treatment should find universal extension, still the abuse of this method may provoke the danger either of making the disease worse or of producing such a one; while capable of the greatest good, still, if used at the wrong time and place, the air-douche can cause endless injury.

Not long since it was the fashion on the part of the practitioner and even the specialist to "air-douche" every variety of ear disease, and the patient soon learned to treat himself by Valsalva's and Politzer's methods.

In this connection two questions arise:

1. Can the air-douche under certain circumstances work injury?

2. When can and ought we to apply the air-douche for the relief of existent affections of the hearing?

The first question must be answered with a "yes." In accord with physical laws and following the path of least resistance, whenever air is compressed in the nasopharynx it extends through the Eustachian tubes into the middle ear. Unfortunately, not air alone, but at the same time a portion of the contents of nasopharynx, mucus, secretions, and accidental dirt is carried along.

Dr. Haug has had the opportunity to observe a case in which an acute middle-ear inflammation was caused by snuff, as a result of sneezing, and particles of snuff were extracted through the incision in the drumhead. More important for us is the fact that many of the microorganisms which are found in the normal oro-nasopharynx, and are the most exquisite provokers of infectious disease, may be carried along the same path and set up an inflammation, especially when the nasal mucus has lost its bactericidal properties from pathological processes.

This latter condition is necessary, otherwise in spite of the presence of pathogenic organisms no disease will occur. We well know that as a result of the removal of the protective apparatus, as, for instance, paralysis of the ciliated epithelium of the upper respiratory tract from a sudden cold, etc., an infection of the general organism may occur; we know, indeed, that the greater part of the acute general infections do thus occur. Therefore, we are not surprised that the largest portion of the acute inflammations of the ear occur by the way of tubal infection—infection through the blood-stream, as well as infection from without through the external meatus, are far less frequent. "An ounce of prevention is worth a pound of cure." Having established the fact that infection of the ear can readily occur from the nasopharynx by continuity or contiguity, we should direct all our efforts to prevent this eventuality.

Therefore it is our task to warn our patients against voluntary air-condensation in every acute catarrh, every angina, whether exclusively local or the expression of a general infection. Caution should be exercised in blowing the nose. Never blow the nose with closed mouth or both nostrils closed. Von Tröltsch advises the countryman's method.

We now come to the proper consideration of the therapeutic employment or non-employment of the air-douche. Haug first must speak of the acute middle-ear inflammations. These processes are associated with more or less marked reduction of hearing power, and since we know that such disturbances are often relatively easily improved by the air-douche, its employment follows quite logically. This was formerly the custom of almost all ear doctors, and is still so to some extent.

May the air-douche be employed in the acute catarrhal or acute purulent middle-ear inflammations? No, repeatedly no! The commonest general surgical principle contraindicates this procedure. "Every inflamed organ should have rest."

PREVENTIVE TREATMENT OF HEREDITARY SYPHILIS.

FOURNIER (*La Semaine Médicale*, Nov. 30, 1898) discusses this question: In the event of pregnancy when the father is syphilitic at the stage when the disease may be transmitted, and when the mother is healthy, can medical art intervene to safeguard the child; and, if so, what is the means to be adopted? He considers two classes of cases: (1) when the pregnancy is the first one, supervening shortly after marriage; (2) when several previous pregnancies have resulted disastrously in abortion or in early death of the child. He maintains that the child can be safeguarded by antisyphilitic treatment of the mother, even when she is healthy. He claims that this treatment is rational, effective for the child, and free from danger to the mother. It is rational, because Porak's experiments have demonstrated that the fetus *in utero* can be reached by drugs through the placenta. Within forty minutes of the administration of iodide of potassium to the mother Porak found the drug in the urine of the fetus. It is safe for the mother, as demonstrated by wide experience. He quotes Pinard to the effect that he had not yet come across a case where the mother had suffered. As to the efficacy of the treatment, he does not claim that it will invariably save the child either from death or from syphilis. But that it is a safeguard in the great majority of cases is shown by the results, both with first children when the mother is healthy and the father had syphilis in a transmissible stage at the time of marriage, and also when several preceding pregnancies had resulted disastrously. He recites several cases illustrating this point. Even though cases occur with no good results, he maintains that the attempt should be made; to do nothing is to run the risk of doing harm by compromising the child's health; to intervene is to run the risk of doing no good, and it is better to act uselessly than harmfully. The cardinal points of treatment are that it should be begun as soon as possible after the onset of pregnancy, and that mercury is the best drug to administer. It is much superior to iodide of potassium in the prevention of hereditary syphilis; but if the iodide is given in conjunction with mercury, all the better. Inasmuch as it is not an adult but the fetus that is being treated, small doses should be given. The treatment should be continued during the whole time of pregnancy. As to the particular form in which the mercury is given, and as to whether it be given continuously or intermittently, these matters the author thinks may be left to individual discretion and to the idiosyncrasy of the patient.—*British Medical Journal*, Feb. 25, 1899.

IODINE IN THE TISSUES AFTER THE ADMINISTRATION OF POTASSIUM IODIDE.

An abstract of a paper on this topic appears in the *American Journal of Physiology* for March, 1899. In it P. A. LEVENE points out that during the last few years there have been found in various organisms a number of normal tissue constituents containing iodine, as iodocarnein, iodokeratin, iodospongin, iodoproteid, iodofat. Some of these bodies can be obtained synthetically without great difficulty. It was the aim of the author to investigate the tissues of the higher animals as to their power of binding iodine intramolecularly.

For this study hens were employed, since in them the chemical changes of at least one tissue could be followed from day to day. The eggs were examined from time to time during ten weeks, at the end of which period the other tissues were analyzed. During the first three weeks the author found iodine only in the form of potassium or sodium iodide. Beginning with the fourth week the iodine appeared as an organic compound, apparently as iodofat. Of the other tissues or organs, the following were examined: nervous tissues, muscular tissues, glandular organs, gastrointestinal tract, skin, and adipose tissue. In none of them could any appreciable amount of organic iodine be detected with the exception of the bones, where a noticeable quantity of iodofat was present.

Comparing these results with all that is known on the subject, the author comes to the conclusion that only certain keratins, such as that of the hair, are capable of binding iodine in the organism; only certain proteids, such us that of the thyroid gland, have the same faculty; and only certain fats act in the same way. Whether this result depends on the peculiar chemical composition of those compounds or on a peculiar activity of the different organs or organisms the author will endeavor to solve.

INJECTIONS OF NORMAL SALINE SOLUTION IN DIABETIC COMA.

ROGET and BALVAY (*Lyon Médicale*, Jan. 8 and 15, 1899) report the following case: A

man aged twenty was admitted to hospital on June 3, 1898. He had had syphilis and ague, and was addicted to alcohol. Five years before he had remained unconscious for some time after a blow on the head. On July 2 he had several epileptiform fits. Though anasarca was present, there was no discoverable cardiac or renal lesion. The urine contained a quantity of sugar. On July 23 he had a fit, with deviation of the head and eyes to the left, and clonic spasm in the face, chiefly on the left side. On August 1 the edema of the legs extended to the thighs. There was slight left facial paralysis, and the knee-jerks absent. On August 2 complete coma with epileptiform convulsions came on. Urine was scanty and had to be drawn off by a catheter. He was then treated with injections of normal saline solution, and received in all, between August 4 and 9, nearly fourteen pints, three and a half of which was introduced directly into the veins, and the rest subcutaneously. Besides this he had three enemata containing 17½ fluidounces each. By these means free diuresis was established, and the kidneys being sound the poisons were probably flushed out through them. As soon as consciousness returned he ate with avidity, and swallowed large amounts of alkaline water, containing in all nearly 1½ ounces of sodium carbonate, which doubtless aided the process. On August 16 his condition was as good as it was before the coma appeared. He lived four months and then died of empyema and phthisis. Post mortem the pancreas was found to be partially absent. Towards the end there was pus in the urine, and calculi were found in the pelvis of the kidney, whose substance was found on microscopical examination to be perfectly healthy. The condition of the brain is not noted.

The authors have been able to collect nineteen cases of diabetic coma treated by saline injections, mostly published in Germany and England; of these only one, a case of Lépine's, recovered from the coma, but few or none appeared to have received such copious injections.

SUPRARENAL GLAND EXTRACT AS A HEMOSTATIC.

The *British Medical Journal* of February 25, 1899, contains an article by LERMITTE upon the use of suprarenal gland.

In 1896 Dor, and subsequently Darier, made use of an extract of suprarenal gland in ophthalmic practice. Their object was to reduce hyperemia of the conjunctiva in cases where operation was urgent, but in which, owing to local congestion, it was difficult to obtain anesthesia with cocaine alone. Marked success attended these trials, and suggested its further employment in cases of conjunctivitis, keratitis, and iritis. It was found that a single drop of a watery extract was sufficient to render the bulbar conjunctiva anemic, and under its use, in conjunction with cocaine, iridectomies were performed.

In 1897 Velich confirmed these statements, and affirmed that a watery extract, when dropped into the eye, caused a marked vascular constriction, and so relieved conjunctival hyperemia, however caused. Velich also investigated the action of the suprarenal extract on the vessels lying under the unbroken skin, and found that the normal pink color quickly disappeared under its application. The same vasoconstrictor action was noticed when the extract was applied to eczematous skin, nævi, and even sarcomata.

In 1898 J. A. Mullen reported the results he had obtained from the use of suprarenal extract in nasal surgery. He, like his predecessors, made use of it for the purpose of operation only, and claimed for it that it not only prevented primary but also secondary hemorrhage, and increased the anesthetic effect of cocaine to so marked a degree that the cautery could be carried down to the periosteum with the greatest confidence.

In the light of these results Dr. Lermitte determined to endeavor to carry the investigations into the hemostatic qualities of suprarenal gland a step further, and to widen the scope of its utility by treating actual hemorrhage with it. A suitable case for this purpose presented itself early in August of last year.

The patient, a boy aged six, was brought to Dr. Lermitte with the following history: He had a severe attack of diphtheria in 1894, and during the stage of convalescence had repeated attacks of epistaxis. These had persisted up to that time in spite of every form of treatment adopted. The treatment had been entirely constitutional, not local. For one year before Dr. Lermitte saw him he had been taking a mixture containing potassium chlorate three grains and tincture of iron chloride five minims, three times a day, with more or less persistence, but without any effect in diminishing the bleeding from the nose. These attacks of hemorrhage occurred at all hours of the day and night, often without apparent cause, but sometimes

they followed on any unusual exertion. The attacks varied in intensity and duration, often lasted a considerable time (an hour or longer), and the loss of blood was always great. At times he would have three or four attacks on three successive days, and then would follow an interval of a fortnight without an attack. On the whole, they averaged three or four a week. During the attacks the child was laid prone, and cold compresses, generally of vinegar and water, applied to the forehead.

On examination of the nasal cavities the only abnormality present was a dilated and angiomatous condition of the vessels. The site of the hemorrhage could not be detected. Constitutionally the boy was in a weak state and had enlarged glands in the neck and right groin, probably tuberculous. The lungs, heart, and kidneys (urine normal) were apparently healthy.

At first Dr. Lermitte ordered a nasal douche containing liquid extract of hamamelis, to be given every night and morning. This was continued for one month without success. On September 17, 1898, he commenced treating the nose locally by inserting into each nostril a pledget of cotton-wool soaked in a five-per-cent solution of cocaine and leaving them *in situ* for five minutes. On withdrawing these similar pledgets soaked in a saturated solution of boric acid containing five grains of dried extract of suprarenal gland to the ounce were inserted and left in for the same length of time. These applications were made on alternate days till October 7 (three weeks), then on every third day till October 31 (three weeks), and afterwards on every fourth day up to November 22; making in all twenty-four applications.

The immediate result on the nasal mucous membrane was to produce a condition of ischemia, and the effect on the epistaxis was to cause its cessation. Up to the time of writing there have been no attacks of hemorrhage since the first application was made.

That there was no hemorrhagic diathesis present, Dr. Lermitte says he had occasion to prove on November 28, when he removed the enlarged cervical glands. There was nothing more than a very moderate amount of bleeding at the time of the operation and no subsequent oozing, the scar having healed perfectly by the sixth day.

The author hastens to report this case in the hope that others may be induced to use suprarenal gland extract in the treatment of hemorrhage due to various causes, as he says he is led to the conclusion that in this, one of the latest additions to our armamentaria derived from the animal kingdom, we possess a very powerful hemostatic whose use, unlike some others, is attended by no unpleasant effects either at the time of its application or subsequently.

THE "LANCET" AND QUININE IN MALARIA.

In a special article upon this subject the *Medical News* of March 4, 1899, again returns to the question which we have so often discussed in the THERAPEUTIC GAZETTE in editorials, articles, and progress items. We quote the article simply to present both sides of the matter, willing to let it rest with the profession:

"The London *Lancet* of February 4, before it had seen our answer, we suspect, comments approvingly on Dr. Hare's criticism in the *Medical Record* of our position with regard to the use of quinine in malaria, and especially as to its use in blackwater fever, malarial hematuria, or hemoglobinuria. *The Lancet* considers that Dr. Hare is very sensible in echoing the caution which Koch has lately given with regard to the use of quinine in malarial hematuria, 'a caution, indeed, which had been given before by many writers in America, and especially by many physicians in the States.'

"Our views on the subject have aroused a good deal more attention than we anticipated. We do not pretend to any profound knowledge of the subject gathered from our personal experience. We stated practical conclusions for the benefit of the general practitioner based on the opinions of thoroughly conservative experts in the treatment of malaria.

"We shall now quote more fully the authorities substantiating our position, and ask a candid judgment as to whether it is not the only position possible for an unprejudiced medical editor to hold. Osler in the last edition of his 'Text-book' adds to his article on malaria the following clearly expressive paragraph, which was evidently penned after consideration of the articles called forth by Koch's declarations regarding his experience in South Africa: 'An interesting question is much discussed whether quinine does not cause or at any rate aggravate the hemoglobinuria. We have not yet seen a case in which this condition has occurred as a result of the use of the drug. It seems localized in certain sections, and Bastianelli states that

it is not seen in the Roman malarial fevers. He recommends that in any case of hemoglobinuria if the blood shows parasites quinine should be administered freely. In the postmalarial forms quinine aggravates the attack. In the active malarial infection the patient runs less risk with the quinine.'

"In *The Lancet* of December 24 there is the discussion of a case of malarial hemoglobinuria before the Pathological Society of London. Dr. W. H. Crosse says of his patient: 'In spite of his improving under quinine he had a slight relapse of the hemoglobinuria, which disappeared while he was having still larger doses of quinine.' Dr. Crosse was until recently the chief medical officer to the Royal Niger Company of Central Africa. He has had an extensive experience with malarial hemoglobinuria, including a number of attacks of the disease himself. He discussed this subject at the opening of the medical session at Guy's Hospital last fall (see *British Medical Journal*) and completely disagreed with Koch. He attributes his own attacks of malaria to his failing to take quinine. He tells the story of a friend who foolishly decided against the use of quinine and suffered a very severe attack, from which he was saved only by the free use of quinine. He insists that his friends going to Central and South Africa shall have no foolish notions with regard to any possible harm produced by quinine during the course of the affection.

"Dr. Moffat, principal medical officer of the Uganda Principality, writes to the *British Medical Journal* of September 24 as follows: 'Prof. Koch may be right when he says that quinine poisoning causes hemoglobinuria. I do not possess sufficient knowledge to criticize that statement. This much I will say, that after seven years in eastern equatorial Africa, during which time I have treated many hundreds of cases of malaria, I have never seen a man die of fever when quinine was given properly and early in the case. The fatal cases, whether complicated with hemoglobinuria or not, have all been those in which for some reason quinine was not administered, or was given in very small doses, or else resorted to only when the case was practically hopeless. Out of nine cases of blackwater fever which I have had two were fatal; in both the administration of quinine was neglected until too late. All the cases which recovered were treated with heroic doses of quinine, with one exception. In this one case thirty grains of quinine was given in the twenty-four hours, and the attack lasted for days, the hemoglobinuria subsiding gradually. In the other cases 60 to 120 grains in the twenty-four hours was given, and the hemoglobinuria only lasted from twenty-four to thirty-six hours, stopping quite abruptly.'

"Laveran in the last edition of his book on 'Paludism' says: 'It is always necessary to resort to quinine for the treatment of acute paludism when we wish to break up the fever, and especially in grave cases.' Further on he continues: 'The rarity of quinine hemoglobinuria shows that an individual predisposition is necessary for it. Malaria is only an accessory (adjuvant) cause. Sulphate of cinchonidine does not give rise to hemoglobinuria, according to Pampoukis, and ought to be substituted for quinine in patients liable to it.' Laveran, it may be seen, does not feel able, even in patients with an idiosyncrasy, to advise a radical departure from cinchona-bark treatment in some form.

"Next we come to the question of the influence of quinine on the kidneys. *The Lancet* quotes with approval Professor Hare as saying that according to writers of experience quinine in full doses has similar effects (nephritis, fatal malarial hematuria, and glomerulitis have been mentioned just above, and to all, or at least to some, of these the reference is made): 'These effects are brought about by quinine producing renal congestion and inflammation.' We should like to know some reliable authorities for this startling statement of *The Lancet*. If full doses of quinine produce renal inflammation, Italy would be overrun with nephritis. So would all the malarial countries. The fact is that nephritis is no more frequent in malarial countries where quinine is used freely than it is elsewhere. Hirsch, the medical geographer, made a special study of this subject years ago, and his conclusions have never been contradicted. *The Lancet*, unwarrantably it would seem, is lending the weight of its authority to an opinion liable to do a good deal of harm when it states that quinine in therapeutic doses ever produces nephritis except in the rare cases in which idiosyncrasy exists.

"Laveran discusses in his book (before mentioned) the complications to which the use of the salts of quinine may give rise. He mentions toxic symptoms, hemoglobinuria, icterohematuria, cutaneous eruptions, visual and auditory phenomena, and oxytocic properties, but says not a word of nephritis. Rem

Picci, who made a study of nephritis complicating malaria in Rome, and who has collected the statistics of over 7000 cases of malaria that occurred in the Roman hospitals during the last four years, said in *Il Policlinico* last year: 'The treatment of the kidney affection (of malaria) is the same as that of malaria itself. Quinine, which according to some authors causes albuminuria and hemoglobinuria, is not contraindicated, but on the contrary is indispensable. These symptoms occur with or after the malarial paroxysm and before the employment of quinine; they get worse with every new attack, and disappear with the malaria itself after the energetic use of quinine.'

"We sincerely hope, then, that the omniscient editor who sits up aloft in *The Lancet* offices and dictates, without quoting his authorities, *ex cathedra* conservative opinions to an inexperienced medical public, will let us share in the special illumination on this subject vouchsafed to him. The subject is an extremely interesting and important one. Let us have the facts and the figures to demonstrate why we should hesitate to use full therapeutic doses of quinine whenever there is active malaria despite the presence of nephritis, of albuminuria, or of hemoglobinuria. As far as our researches into the literature of the subject go, the authorities, who speak from experience, are on the other side."

THE RESULTS OF 360 OPERATIONS FOR GALL-STONES, WITH SPECIAL REFERENCE TO 151 PERFORMED DURING THE PAST TWO YEARS.

The operations comprise all or nearly all that can be imagined in connection with gall-stones. The mortality of the operation in simple uncomplicated cases was 3.8 per cent. The writer advises early operation before the gall-stones have been forced into the deeper bile passage. In the earlier periods the operation is less dangerous and also less difficult than when the choledochus has to be opened. When symptoms of obstruction of the passages are present, he proceeds to operate unless evidence is present of the re-establishment of permeability of the duct. Cure of the cholelithiasis by internal remedies the author looks upon as one of the rarest of events. Development of carcinoma he considers one of the dangers to be feared in cases of long-continued irritation from gall-stones. The normal procedure is cholecystectomy, and although with this recurrence is possible, he has never seen it. Cholecystectomy is a more radical operation, but it is also more difficult and more dangerous. Ideal cholecystectomy can only be exceptionally performed; a free drainage of the gall-bladder is the surest means of overcoming the catarrh that so often exists.—*Medical Press and Circular*, March 8, 1899.

THE TREATMENT OF UREMIA BY INJECTIONS OF SERUM IN THE RENAL VEIN.

The *Medical Press* tells us that at the last meeting of the Lyons Medical Society DE LIGNEROLLES gave an interesting account of his treatment of uremia by injections of serum into the renal veins. The kidney, he said, possesses an internal secretion which it pours into the organism by means of its efferent vessels. The importance of the antitoxic rôle of that secretion against hurtful substances that the kidney could not eliminate had been demonstrated by numerous experiments and by clinical facts. To remedy that renal insufficiency Brown-Séquard, Meyer, Ajello, and Parascandalo injected in animals deprived of their renal organs the diluted juice of kidney extract; they obtained in uremic troubles very favorable results, which confirmed the clinical observations of Dieulafoy, Teiddier, Donovan, and others. But "would it not be better," asked Brown-Séquard, "to employ the venous blood of different parts of the organism than the extracted juice of these parts? The venous blood coming from an organ contains, in fact, the principles of the internal secretion special to that organ."

This conception, which had already guided Meyer in his experiments on the periodic respiration of Cheyne-Stokes, had been realized by Professor Vitzou, of Bucharest. The remarkable cases of prolonging life which he obtained in animals from which the kidneys had been removed, by injections of defibrinated renal venous blood, encouraged Dr. Turbure to treat in the same way patients suffering from uremia. Under the inspiration of Professor Teissier, the speaker made a special experimental study of the treatment at the hospital.

The blood of the renal vein of a young healthy goat was drawn under perfectly aseptic conditions, and its serum decanted into six-drachm bottles. The toxic properties of the serum were insignificant, especially when

the liquid was injected into the subcutaneous cellular tissue.

The cases he presented to the Society were not numerous on account of want of time, but such as they were they merited attention, not only on account of the novelty of the method, but also, and what was more important, by the constancy of the results obtained. The first case was that of acute nephritis complicated with uremia. The patient, a boy of fifteen, entered the hospital suffering from anasarca, the result of scarlatina. The urine contained a large quantity of albumin, leucocytes, and cylinders. Vomiting was persistent. The symptoms became so grave that an injection of six drachms of the serum was made in the right flank. The following morning the improvement was considerable; the violent headache had subsided, as well as the vomiting, and four days afterward the edema had disappeared, while the urine, scanty before the injection, returned with great abundance. All trace of the albumin had disappeared at the end of a fortnight, and the patient rapidly gained strength. Another case was that of a woman aged sixty, who entered the hospital with signs of chronic nephritis (*bruit de galop* heart, a large quantity of albumin in the urine, diminished renal permeability). An injection of the serum of the renal vein produced a very notable improvement in all the symptoms and in the general condition of the patient. Here also the albumin disappeared.

The details of the following case were furnished to the speaker by Professor Turbure, of Bucharest:

Nicholas V., aged twenty-seven, entered the hospital with generalized anasarca; the legs were swollen to the abdomen, and the patient complained of frequent micturition, thirst, headache, pains in the back, and tingling sensation in the fingers. The lungs, heart, and liver appeared sound. The urine contained albumin, and was very abundant (five liters). In a few days these symptoms grew much worse, the headache became excessively violent, dyspnea set in, and finally he was seized with tonic convulsions, in spite of the application of repeated wet cupping. Neither the quantity nor the quality of the urine could explain these phenomena. What was wanting was the internal secretion of the kidneys, whose office was to neutralize the toxins accumulated in the organism. This point was remedied by injecting under the skin of the patient three drachms of defibrinated renal venous blood drawn from a strong and healthy dog. A few hours later the patient became calm, and asserted that he felt much better. Four days afterwards the headache returned, but yielded to another injection, and the urine diminished by a third. A few days afterwards the patient insisted on having another injection, and in all six were given with constantly improving results, so that at the end of six weeks he left the hospital cured.

In summarizing the effects of the treatment, M. Lignerolles said that the effects of injections of six drachms showed themselves in general a few hours after injection. The violent headache was the first to disappear, while the nervous troubles, prostration, weakness, melancholy, delirium, gave place rapidly to sometimes exuberant gaiety. The vomiting ceased after one injection, and the oppression or dyspnea was eased in a very short time, while the urine, scanty before the injection, became very abundant under its influence, with consequent removal of the edema.

From all these facts he would conclude that injections of the serum of the renal vein could be employed with success against the uremic complications of nephritis, and could contribute to the improvement of these maladies, as he had several times observed. They furnished to the organism the internal secretion wanting, and allowed the kidney to recommence its normal function of excretion and its antitoxic rôle.

INTRAVENOUS SALINE INJECTION IN SEVERE HEMORRHAGE.

As a result of an experimental research Cobb tells us in the *New York Medical Journal* of January 28, 1899, that in using saline injections it is not necessary to take accurately the temperature of the saline solution, if one is in a hurry. [With this we entirely disagree.—Ed.]

If the solution feels comfortably warm to the finger no harm will result from its introduction. The temperature should be about 114° F., but if it is 125° F. do not lose time in cooling it. [We think it should be 105°. —Ed.]

It is astonishing that no apparent harm resulted from the introduction of saline solution at the extremely high temperature of 130° F. One would naturally believe that such a temperature would coagulate the albumin and seriously damage the red cells.

Saline given with oxygen will save almost hopeless hemorrhage cases.

Do not lose time in getting the solution into the circulation.

It is urged that the solution be introduced into a vein, after a severe hemorrhage, in preference to the slow method of subcutaneous injection.

To furnish as much blood as possible for the purpose of carrying oxygen, bandage tightly the extremities, thus forcing the blood in the capillaries back to the heart. The introduction of small quantities of air into the circulation seems to make no particular difference, for undoubtedly air was introduced into the circulation of all the dogs in these experiments.

All dogs urinated after the pressure had been reinstated by the saline solution. The question of overdistention of the heart must not be ignored by introducing too much saline, for the pulsations become "running" when there is an excess of solution. So far as he could tell, the dogs that recovered urinated more frequently, and passed a greater quantity of water than normal, for thirty-six hours after the operation.

Do not let the patient die while the solution is being sterilized. Be prepared for such emergencies; if not, introduce the solution without sterilization, if the case is urgent. [But only under the skin.—ED.]

If one does not have time to weigh the salt, take a tablespoonful and toss it into two pints of water. [Two teaspoonfuls would be better.—ED.]

It is an easy matter to be prepared for an immediate saline injection, for Parke, Davis & Co. are now preparing sterile normal saline solution, put up in ounce bottles, which, added to the necessary amount of water from the hydrant, kettle, or sterilizer, makes the solution ready for instant use.

From these experiments one is led to believe that in opium poisoning it would be advisable to withdraw five hundred cubic centimeters of blood and introduce five hundred cubic centimeters of saline solution.

In the early stages of pneumonia it seems reasonable to believe that the withdrawal of blood, and replacing it with normal saline solution, would relieve the tension of the pulmonary circulation in the early stages, and would furnish a fluid which would more readily take up oxygen.

The blood count was made with the hematokrit, and the hemoglobin tests were made with von Fleischel's hemometer. The tests, of course, are only approximately correct.

The blood counts and hemoglobin tests showed great variations, probably due to the fact that some of the dogs had been kept in the pound until they were sick.

Saline solution and oxygen in uremic convulsions or threatened eclampsia have already been proved the most efficacious treatment for these terrible complications.

THE EMPLOYMENT OF SALINE SOLUTION.

At the Société de Thérapeutique Professor BOLOGNESI read a paper on the above subject, which was very exhaustive. In referring to the methods employed, he said that artificial serum could be introduced into the organism by four ways—the serous, vascular, subcutaneous, and intestinal.

Intraserous injections were first proposed by Ponfick, who had remarked that the blood effused into the serous membranes was rapidly absorbed. The injections were nearly always made into the peritoneum by means of an incision made above the umbilicus and penetrating to the linea alba; the needle was pushed as in the operation of tapping for ascites. Perforation of the intestine, which many feared, was rare, but the operation was always painful, and followed by distention of the abdomen. As the slightest failure in antiseptic precautions could produce mortal peritonitis, intraperitoneal transfusion was but little practiced.

Intravascular injections were first employed by Hueter, Roux (Lausanne), and Kummel. The vessels chosen were the veins of the bend of the elbow, or the internal saphena vein over the ankle, which passing over the bone is more easy to discover in stout people, and whose caliber is larger than any of those at the bend of the elbow, while the introduction of air at such a distant point from the heart presents but little danger. The quantity of liquid injected varied between one to three liters, with an average of two liters, at a temperature of 86° F. The rapidity of the current should not exceed ten minutes per liter.

Venous injections present certain inconveniences not entirely exempt from danger. Consequently, many practitioners prefer for these reasons the subcutaneous method. For inexperienced hands the venous injection is a regular operation; the veins are frequently difficult to discover; timid operators are afraid of introducing air into the veins; and in any case septic accidents might be provoked, such as phlebitis. Pozzi published

one case of acute edema of the lungs as a consequence of the operation. Further, the counter-indications, cardiac lesions, and weakness of the myocardium in particular, were more frequent. Bosc, of Montpellier, preceded the injection of the serum by drawing off a liter of blood; while Barré invented a rather complicated apparatus to combine these two operations, so that the amount of blood withdrawn was replaced by its exact equivalent of artificial serum; but there was no necessity of being so precise, as the same effect could be produced by ordinary bloodletting and the introduction of the serum subcutaneously.

The subcutaneous method is at present the most frequently employed, and answers every purpose except in urgent cases requiring the intravenous method. The region chosen should be that rich in cellular tissue, such as the axilla, the abdomen, the thigh, or the gluteal region.

The instruments employed to make these injections are numerous, and vary from that of Dumouthier to the simple funnel, but the simplest for all intents and purposes is the ordinary aspirator of Potain, possessed by every practitioner.

The only trouble arising from the subcutaneous method was the pain from the introduction of the needle, which, however, was insignificant, and that produced by the distention of the skin; or, again, the formation of an abscess, but this latter can be avoided with a little care.

Enemata of salt water were known and employed for a very long time, but it is only within the last two years that this method was substituted for the subcutaneous injections. All know the facility and rapidity of rectal and intestinal absorption for medicated solutions, and no one is astonished at the extreme rapidity by which enemata of salt water are absorbed. These enemata strengthen the pulse, render the urine abundant, and suppress thirst. They are used by Eitz with great success for uremia, and by Boulengier for postpartum hemorrhage and for intestinal hemorrhage in typhoid fever.

In affections of the nervous system, Professor Grasset, of Montpellier, advised saline injections in apoplexy with arterial hypotension. They were proposed in contagious affections such as erysipelas, measles, scarlatina, smallpox; while Professor Tommassi, of Palermo, in certain skin diseases derived benefit from them, especially in chronic eczema, and in lichen attended with great itching. His colleague, Barbier, obtained considerable success with the saline injections in infantile cholera, and generally in all the intestinal affections of infants.

Lancereaux published remarkable effects of subcutaneous injections of a saline gelatin solution in cases of aneurisms (gelatin one drachm, saline solution ten ounces). Injected under the skin of the gluteal region, and renewed once or twice a week, ten to twenty injections were generally sufficient to effect a cure.

Among the contraindications of the treatment by saline solutions he would mention heart affections, edema of cardiac origin, dropsies, pulmonary congestive lesions, and renal sclerosis.—*Medical Press and Circular*, March 8, 1899.

ON THE ABSORPTION OF IRON.

The *Boston Medical and Surgical Journal* of March 2, 1899, contains an article by AUSTIN upon this subject. After detailing his research he adds his conclusions, which are as follows:

If the difference between the amount of iron ingested and the amount eliminated represents the amount retained in the body and hence absorbed, then there can be no question from these experiments in regard to the absorption of the iron of the blood when taken either in the form of hemoglobin, as in the meat, or as hematin in the preparation used. This assumption also appears as fully justified as that the amount of nitrogen in albuminous food taken less the amount of nitrogen in the feces and urine represents the amount of the same element taken on by the body in the form of tissue, and this principle has been assumed as proven by all physiologists who have been engaged in experiments on metamorphosis. This also substantiates the views held by Kobert in regard to the absorption of the blood. Considering that the amount of iron retained in the third period from the meat was proportionally as great as in the second, then the amount of iron retained from the .2058 gramme contained in the hematin preparation must have been at least .0152 gramme, or 7.30 per cent —a very small portion, it is true, but it does not indicate necessarily the total amount absorbed. In applying the same calculation to the beagle we would find that out of .0774 gramme in the albuminate at least .0026 gramme, or 3.3 per cent, was retained; her-

we cannot from this say absolutely that iron albuminate is not absorbed, but that the amount retained is only one-half of that in the hematin; of the ferrous sulphate it is quite evident in this experiment that none was retained, and hence probably none absorbed. A brief summary of this work will establish the following points:

1. That iron is constantly being eliminated both in urine and feces during fasting.

2. That apparently raw meat furnishes an available form of iron for absorption under normal conditions.

3. That inorganic iron as represented by ferrous sulphate is non-absorbable.

4. That albuminates and peptonates of iron are absorbable, but to a limited extent.

5. That organic iron, of which hematin and hemoglobin are representatives, furnishes the most easily absorbable and most valuable of all iron preparations.

A NOTE ON THE TREATMENT OF TUBERCULOSIS AT FALKENSTEIN.

The sanatorium is situated at a height of 1300 feet on the southern slope of the Taunus mountains; it faces the southeast, where the ground falls some thousand feet to the valley of the Main, and to Frankfort, and is protected on the three other sides by the higher portions of the Taunus range. The climate is cold in winter, but although there are fogs the atmosphere is singularly free from winds and dust, and there is no perceptible fall of temperature at sunset.

The main building is in plan like a wide horseshoe and encloses a gravel terrace, along which extend covered verandas. In these cane sofas or deck chairs are ranged, and on these the patients spend practically the entire day.

Additional pavilions are placed in the grounds; some of these revolve so that they may be turned to avoid the wind and catch the sun; the Germans have, with somewhat grim humor, christened the pavilions by such names as "The Hall of Sighs," "The Temple of Bacilli," etc.

For the first few days the patients only lie out from after the second breakfast to 5 P.M., but afterwards the day's routine is as follows: After ten minutes' rubbing by the attendants the patients assemble at early breakfast, which in summer is from 7 to 8 and in winter from 7.30 to 8.30; this consists of coffee, rolls, and butter, and in addition hot or cold milk *ad libitum*, the watchful attendant at once replenishing empty glasses. Then the balcony is sought, and the patients lie down, placing their feet in fur bags, and wrapping rugs and shawls about them. The wraps belong to the patients and must be provided as part of their outfit. The most expert of packers then goes round and rapidly and skilfully tucks in the patients, who then appear like symmetrical and well-cared-for mummies.

At ten o'clock they go in for second breakfast, which consists of rolls and butter, and hot or cold milk *ad libitum;* to those who in the opinion of the medical attendant need it, strengthening soup is served. They again lie on the veranda until they go in for dinner at 1 P.M. This and supper are of the kind usually served in German hotels, but special attention is paid to making each course as nourishing as possible, and each meal commences with one of the thick nourishing soups that form a Falkenstein specialty.

At 4 P.M. milk is brought round the veranda; this, as well as the 9 P.M. milk, is not included in the regular tariff, but is served at a cost of one penny per glass.

All the milk used at the sanatorium comes from the dairy of the establishment, which is situated on the hillside above, and is sterilized. For those who cannot digest so much milk kumiss is provided.

The patients are encouraged to drink plenty of milk, and generally take from six to eight tumblers a day, which is a large amount for people who are taking daily four solid meals. Occasionally the amount of milk has been limited, as lately happened to a homesick American who tried to expedite his cure by drinking fifteen glasses a day. Supper is served at 7 P.M., and after it the patients may lie out to 9 or 9.30 P.M. At 9 P.M. milk is served round. The patients then retire to their bedrooms, which are warmed by pipes; the windows, however, are left open during the night.

When the patients arrive they are thoroughly overhauled by the entire medical staff; this is repeated monthly, a daily inspection being made by one of the resident medical men. Their temperatures are taken four times daily—at rising, noon, 4 P.M., night. If the temperature shows fluctuation it is taken eight times daily. It is interesting to see how, when the clock strikes twelve and four, all the recumbent patients pull out their thermometers and place them in their mouths until they are ready to be entered on the charts. These hours are anxious ones to

those with a temperature tending to run above normal, as the penalty for raised temperature is banishment to the bedroom until it again becomes normal.

The sanitation of Falkenstein is excellent; there is an abundant water-supply from pure springs situated higher up the mountains, and the sewage is received in precipitation tanks. The whole place is kept scrupulously clean, and constant war is waged on dust.

Although the sanatorium is surrounded by extensive woods with tempting walks, they are out of bounds for the majority of patients, who are required to rest as much as possible; indeed, even needlework is practically prohibited, and letter-writing is discouraged. It is only when patients are nearly well and about to leave that they are allowed to take walking exercise, and even then the distances allowed are short, and the limits fixed are strictly observed.

It will be seen from the above that rest, air, and food are the three means of cure, and that these are administered with no stinting hand. Complete physical idleness, twelve hours in the open air, the night spent in a room with open windows, and frequent full meals of nutritious foods, with plenty of milk in between, take the place of medicines. It is wonderful how the treatment agrees with the patients, how the long exposure to the fresh air does not cause cold, and how the frequent meals are awaited with sharp-set appetite. Of the benefit of the treatment in the majority of cases there can be no doubt, and that not only in incipient cases, but even when both lungs are affected.—*Medical Press and Circular*, March 8, 1899.

THE RADICAL TREATMENT OF SIMPLE ULCER OF THE STOMACH.

TRICOMI (*Revue de Chirurgie*, Feb. 10, 1899) has operated upon twenty-one cases of simple ulcer of the stomach with but a single death. He holds that the indications for operation are recurrence of ulceration with marked deterioration of general health, resistance to medical treatment followed scrupulously for a long period, intense pain, especially when accompanied by obstinate vomiting, recurrent hematemesis, and evacuating cachexia, gastric dilatation, the formation of a palpable tumor, and the development of an extensive adhesive peritonitis. As an operation of choice, the author prefers gastroenterostomy. This, he holds, is applicable in all cases, no matter what may be the state of the lesion. The loss of resistance incident to this procedure, and consequently the comparatively short period of time during which the food and the gastric juices remain in the stomach, is the probable cause for the cure which takes place. Of the author's twenty-one cases, one died of acute peritonitis in a day and a half; another died after a month from interstitial occlusion. Tricomi contrasts the mortality of some fifty operative cases (ten per cent) with that of the cases treated by medical means exclusively (31.8 per cent), drawing therefrom the conclusion that the operation is one which if practiced early would save about twenty-eight cases in the hundred.

ICHTHYOL IN THE TREATMENT OF ANAL FISSURE.

CONITZER (*Münchener Medicinische Wochenschrift*, No. 3, 1899) holds that ichthyol is particularly serviceable in the treatment of anal fissure. The applications are repeated twice daily at first, cocaine being employed to diminish the pain. The pure preparation is used towards the end of treatment. A cure results in a few days.

THE TREATMENT IN ACUTE OTITIS MEDIA.

JONES (*Liverpool Medico-Chirurgical Journal*, January, 1899) writes upon the subject of acute suppurative otitis and its complications, believing that this affection has been somewhat neglected in favor of the chronic form of disease. The first proposition is that once the wall of a great sinus or the dura has been penetrated, there can be no certainty of a successful issue to operative treatment. With the object of proving this proposition he has recorded seven cases which died in spite of operation. The mortality in complicated mid-ear diseases, even when correctly diagnosed and operated upon, is still high. Even when immediate recovery takes place there is likely to be subsequent alteration of brain function.

The author's second proposition is that while operations for the relief of extradural complications of suppurative otitis—*i.e.*, extradural abscess, commencing phlebitis, mastoid abscess, cervical abscess, etc.—have been invariably successful as far as the complication itself is concerned, these operations, and the radical operations for simple chronic suppurative otitis, have not always resulted in cessation of the discharge, nor in restoration of the hearing power.

Stacke reports, as a result of his radical operation, six per cent of continued discharge and twenty per cent of relapses. Statements such as "completely cured" must be taken with caution unless several years have elapsed since the operation. In spite of the great advance made in recent years in the surgical treatment of chronic suppurative otitis and its complications, the success attained is not such as to excuse any slackening of our efforts in preventing acute cases from becoming chronic.

The author's third proposition is, that with the exception of tubercular cases—and even this is a doubtful exception—all cases of chronic suppurative otitis have once been cases of acute or subacute otitis media, and many of them non-suppurative otitis; and further, that the majority of these cases, by appropriate treatment during the acute stage, might have been prevented from becoming chronic.

Another and stronger reason for directing attention to the acute state is that grave intracranial complications may and often do arise during the acute stage of suppurative otitis. During the first stage of acute otitis media, before the membrana tympani has perforated, the fluid within the ear is serous or serosanguineous and may become absorbed without any further development. The local treatment consists in the application to regions below or in front of the ear of the cold Lieter's coil, and the rendering of the external canal as far as possible aseptic. So long as the pain is not severe and there are no indications of pus formation within the tympanum, paracentesis of the membrana should be deferred. As soon as pus begins to form, the membrane, if not already ruptured, should be punctured, the pus blown out or aspirated, and suitable antiseptic measures resorted to. There is after this operation an immediate improvement in all symptoms, temperature running down, and the symptoms of meningitis, if present, disappearing. These cases are subject to relapse, and should be kept under observation for several weeks. Probably the accessory cavities of the tympanum share in the inflammatory process in the majority of cases. Resolution often takes place. If, however, the attic or antrum becomes cut off from the tympanum, or the contributory cells are cut off from the antrum, so that the inflammatory products do not escape, acute constitutional disturbance will follow, and hence prompt operation is indicated, and the results of this are highly satisfactory. After subsidence of the acute symptoms, if, combined with the free discharge from the ear and the relief of pain, there is tenderness on pressure or tapping on the base or apex of the mastoid; if the apex feels to be slightly prolonged on the affected side; if there is a slight cushiony feel on one side as compared with the other; if there is increased heat; if on rubbing the skin briskly on both sides, one side seems a duskier red; if there is pain or stiffness on moving the head from side to side, with rigidity of the sternomastoid; if several or all of these signs are present, an exploration of the mastoid cells is necessary, and in at least four out of five such cases pus will be found.

The operation required is simple opening of the cells down to the extreme tip, and in some cases the mastoid antrum. The wound should be kept open by iodoform gauze packing until the septic processes have ceased. The discharge generally stops at once, the membrane heals, and the hearing is entirely restored.

Jones advocates opening the antrum in every case in which, the acute stage having passed over, the discharge continues. This he believes would frequently prevent caries of the ossicles and the walls of the tympanum, save the patient infinite discomfort, and likewise avoid the necessity for radical operation in after years.

The etiological importance of postnasal adenoid vegetations, or of permanent perforations of the membrana tympani, in causing relapses or continuous suppuration must not be neglected.

THE OPERATIVE TREATMENT OF TYPHOID PERFORATION OF THE INTESTINE.

PLATT (*The Lancet*, Feb. 25, 1899) notes that on the whole it may be said that the results of operation for the relief of typhoid perforation have improved during recent years. From time to time the published cases have been collected and analyzed by Van Hook, Abbe, Monod, Finney, Gesselewitsch and Wanach, and Keen. Keen in January, 1899, collected eighty-three cases with sixteen recoveries. To his list Platt adds three cases of his own and seventeen published by others, giving a total of 103 cases with twenty-one recoveries. Platt's cases are as follow:

A man aged thirty-seven years was admitted to the Monsall Fever Hospital, Man-

chester, at midnight on November 15, 1898, suffering from an apparently mild attack of enteric fever. The temperature was 102° F.; the tongue was moist and coated, the abdomen was fairly soft, there were a few rose spots, the spleen was a little enlarged to percussion but was not felt, and numerous rhonchi were to be heard on auscultation of the lungs. Widal's test gave a positive reaction. On the next day, at 8 P.M., the patient complained of sharp shooting pains below and to the right of the umbilicus; two hours later the temperature rose to 104.6°. On the 17th, at 11 A.M., the patient vomited once. The abdomen was hard and distended, the tongue was dry, and the bowels were constipated. The pulse was 96 per minute, regular, of good volume, but slightly dicrotic. At 1 P.M. the liver dulness had disappeared and perforation was diagnosed. Twenty-two hours after the onset of the perforation the patient was operated upon. An incision four inches long in the right semilunar line was made. On opening the peritoneum there was an escape of gas, followed by a little feculent fluid; the intestines were greatly distended. It was necessary to eventrate a considerable portion of the small intestine before the perforation could be discovered. The perforation was about a quarter of an inch in length and was situated opposite the mesenteric attachment in a loop of ileum lying near the pelvic brim; its distance from the cæcum was not ascertained. The neighboring coils of intestine were covered by a fair amount of dirty fibrinous lymph. There was evidence of several other ulcers in the intestine. The edges of the perforation were turned inwards and the peritoneal surfaces were united by a continuous silk suture introduced by an ordinary sewing needle. Considerable trouble was experienced in returning the intestines to the abdomen because of their great distention. The eventrated intestines and also the peritoneal cavity were irrigated freely with hot saline solution. A rubber drainage-tube was introduced, passing down towards the pelvis, and the rest of the wound was sutured. The operation lasted fifty minutes. On the 18th and 19th the patient was fairly comfortable. The temperature varied between 98.4° and 99.8°; the discharge from the wound consisted of a little thin, yellow, slightly opalescent serum. On the 20th the abdomen was greatly distended, the tongue was dry, and there was retching and slight sickness. Some relief was obtained from an enema containing turpentine. From this date the patient progressed favorably until December 2, when there was a relapse of the fever, which lasted for three weeks. The drainage-tube was removed November 30 and gauze packing was substituted. The wound was healed on December 26.

The second patient was a male, aged seventeen years, whose illness commenced on October 22, 1898. On November 20, eighteen hours after perforation, an incision four inches long was made in the right semilunar line. There was gas and feces in the abdomen; the intestines were not much distended. The perforation was found at once in a loop of ileum passing from the iliac fossa into the pelvis; it was situated near the pelvic brim. An attempt was made to close the opening by a continuous suture, but the bowel wall was so rotten that some of the loops cut out. With some difficulty the opening was closed by interrupted Lembert sutures, its edges being turned inward. The abdomen was washed out with hot saline solution, a drainage-tube from the wound into the pelvis was inserted, and the rest of the wound was sutured. The operation lasted forty minutes. After the operation the patient was much collapsed, and about half an hour afterward two pints of saline fluid was infused into the median basilic vein. He rallied somewhat for a time, but died at 7.15 P.M. on the same day, eight and a half hours after the completion of the operation. The necropsy showed general peritonitis, six or seven other ulcers in the ileum, and the perforation to be situated nine inches from the cæcum. The sutures were sound and the perforation was healed.

The third patient was a man aged twenty-two years. Illness commenced on November 1, 1898. On November 20, nineteen hours after perforation, an incision four inches long was made in the right semilunar line. There was gas and about a pint of feculent fluid in the abdomen; the intestines were not much distended. The perforation was easily found in a loop of ileum situated near the pelvic brim; its edges were turned inward and interrupted Lembert sutures were applied. The abdomen was well flushed out with warm salt solution, a drainage-tube was inserted into the pelvis, and the rest of the wound was sutured. The operation lasted forty-five minutes. The patient rallied for a time, but then sank, and died on November 22 at 11.50 P.M.

Operation for typhoid perforation of the intestine has already given a gratifyin-

amount of success. If undertaken within twenty-four hours of the giving way of the bowel a recovery rate of from twenty-five to thirty per cent may confidently be expected, and when it is considered that without operation the condition is almost inevitably fatal, there can no longer be any doubt as to the advisability of the procedure.

MODERN LITHOTOMY.

LOUMEAU (*Annales de la Policlinique de Bordeaux*, March, 1899) apparently on the basis of a single case announces that modern lithotomy implies an elaborate and prolonged crushing, pushed almost to the point of complete pulverization; chloroform anesthesia maintained at the first stage during the period of preliminary washing and crushing, then pushed to the third stage of complete anesthesia during the period of aspiration; rigorous asepsis during the operative act; and finally, postoperative cystoscopic verification as to the complete emptiness of the bladder.

THE TREATMENT OF PAINFUL CYSTITIS.

ALBARRAN (*Annales des Maladies des Organes Génito-Urinaires*, February, 1899), following Guyon, characterizes under the heading of painful cystitis a number of affections of different etiology, characterized by their severity of pain, their chronicity, and their persistence in spite of treatment. Because of increased facilities afforded by modern medicine in the examination of the bladder, these painful cystites (at least a great majority of them) have had additional light thrown upon them.

Cystitis due to foreign bodies or calculus, neoplastic cystitis or tuberculous cystitis, are not included in this classification, although they are extremely painful, are chronic, and resist treatment.

It occasionally happens, for reasons quite unrecognized, that an attack of cystitis acquires an extraordinary intensity and obstinately resists treatment. The cause of this cystitis is often a very ordinary one. It may be gonorrhea, or the passage of the catheter, or a vesical infection secondary to grippe. The ordinary microorganisms are the colon bacilli, staphylococcus, the proteus of Heuser, the streptococcus or gonococcus. One or several of these microbes will be found.

The lesions of these painful cystites are usually deep, attacking the submucous layers or even the musculature of the bladder, often even reaching the perivesical tissues. It is very rare in these chronic painful cases to find the lesion purely superficial. The position of the lesions is especially characteristic, since this is always at or near the neck of the bladder. The lesions observed through the cystoscope are usually those common to severe cystitis. Occasionally vegetating cystitis is noted, or even ulcers or leucoplacia. Sometimes one or more ulcers are found on an apparently almost healthy mucous membrane. Pseudomembrane is by no means uncommon. The diagnosis of the anatomical condition is often extremely difficult. Often it is quite impossible to use the cystoscope.

The most serviceable treatment to begin with is that by instillation, either with silver nitrate or weak bichloride lotion or guaiacol oil. The patient should then be given a warm bath, after which one-half to one drachm of a two-per-cent solution of cocaine should be injected, so that it passes over the trigonum and the neck of the bladder. This is allowed to remain in the bladder for five minutes, after which a lotion of boric acid or antipyrin, at blood heat, is gently injected, when the cystoscope may be used. When this local anesthesia is impossible, because of the intense sensitiveness of the bladder, a general anesthetic should be given. This cystoscopic examination should immediately precede an operation, which is nearly always required. Renal infection very commonly accompanies these cases of painful cystitis, a fact which must be borne in mind in directing treatment.

The instillation with which the conservative treatment always begins should be no larger than thirty drops at the most, and of a one- to a five-per-cent solution of silver nitrate. When the bladder is fairly retentive one-half drachm to a drachm of 1-to-5000 sublimate solution may be used. Silver nitrate is usually the most useful application. Before these instillations the bladder should be entirely emptied; since painful cystitis is usually complicated by some degree of retention the complete emptying is usually accomplished only by means of a catheter.

Usually this local conservative treatment fails, in which case surgical treatment is indicated. Curettage of the bladder is a simple procedure, giving excellent results in some cases. It is most applicable in women, since it can be practiced through the urethra. In men the preliminary perineal operation is necessary. This curettage is especially ser-

viceable when the lesions are limited to the region of the neck of the bladder. It should always be followed by careful after-treatment, and will succeed in uncomplicated cases. Dilatation of the cervical neck is usually unsuccessful. Fistulization of the bladder is one of the most valuable therapeutic resources; the pain ceases promptly, and the deepest lesions get well when the drainage is sufficiently long continued. In woman this fistulization is made into the vagina; in man the opening should be suprapubic. It allows the surgeon at the time of operation to explore the bladder thoroughly, and to curette or apply the thermocautery, in case these remedies are needed. After drainage the bladder should be thoroughly washed and treated, and the opening closed when the inflammation is cured.

PROSTATECTOMY.

SYMS (*Annals of Surgery*, March, 1899) notes that prostatectomy is essentially an operation of modern date, and there are in vogue at present several methods which have proven fairly satisfactory so far; but the operation is still in a process of evolution, and undoubtedly the best possible results have not yet been attained. The principal methods which are at present employed are as follows:

1. Suprapubic prostatectomy without perineal drainage (McGill).
2. Suprapubic postatectomy with perineal drainage (Fuller).
3. Suprapubic prostatectomy, combined with perineal section and drainage (Belfield).
4. Perineal prostatectomy by extensive dissection (Zuckerkandl, von Dittel).
5. Posterior prostatectomy by the sacral route (Rydygier).
6. Perineal prostatectomy, combined with suprapubic cystotomy, without perineal drainage (Nichol).
7. Perineal prostatectomy, combined with suprapubic cystotomy, with perineal drainage (Alexander).

The first three methods, in which the prostate is removed by the suprapubic route, are, in the main, dependent upon the same general principles, but have sufficient variations to mark them as distinct operations. They depend upon opening the bladder suprapubically, then making an incision in the floor of the bladder so as to reach the prostate, and then its removal by enucleation or by morcellation. While these methods have been productive of fairly good results, they are open to certain serious objections, one of the principal of which is the fact that the floor of the bladder is more or less extensively wounded; that the cavity from which the prostate is removed becomes at once part of the bladder pouch, and is thereby a dependent receptacle for urine and exudates, thus rendering infection not only possible, but probable. This objection is not overcome when perineal drainage is resorted to, because the pouch still remains below the level of the tube within the bladder.

Perineal prostatectomy, performed by extensive anatomical dissection, as devised by Zuckerkandl, Dittel, Rydygier, and others, may be excellent from the anatomical standpoint, and is of undoubted use in the treatment of some cases where a very large tumor is present, but it has for its objection the fact that the operation usually is an extensive one, and that it must necessarily be more prolonged than by some other methods, which are serious elements against success in old and enfeebled patients, and also the fact that it does not afford the bladder the advantage of immediate and complete drainage, which is usually essential to the best results.

Perineal prostatectomy, combined with suprapubic cystotomy with perineal drainage, as devised by Alexander, is the best method so far practiced. It is simple of performance, and is dependent upon very proper surgical principles, for the floor of the bladder is not wounded, the perineum is cut in the median line by a single incision, so that the least possible time is consumed and the smallest amount of hemorrhage is encountered. The drainage of the bladder is in the line of gravitation, and the space from which the prostate is removed is not in immediate communication with the bladder cavity, and has perfect and direct drainage, while the urethra is not permanently damaged. In accordance with Alexander's description of this method it is performed as follows:

The patient is prepared for operation by proper emptying of the bowels and by as thorough a cleansing of the bladder as possible. The patient is anesthetized, the bladder emptied, and then distended with borax solution, from eight to ten ounces being sufficient, in most cases, to bring the organ well above the pubes. The rectal bag is not employed. The bladder is exposed by a vertical incision between the recti muscles, and two retraction sutures are introduced through its wall. Between these an opening is made into the bladder large enough to

allow the operator to insert two fingers. The bladder and the projecting portions of the prostate can then be thoroughly examined. With the suprapubic opening properly protected the patient is put in the lithotomy position. A broad, median-grooved staff is passed into the bladder through the urethra, and held by an assistant. The membranous urethra is then opened by a median perineal section, the floor of the urethra being thoroughly cut from just behind the bulb back to the apex of the prostate. The staff is then removed. With two fingers of the left hand passed through the suprapubic opening into the bladder, the prostate is now forced well down into the perineum. With the forefinger of the right hand the surgeon begins enucleation, which is performed entirely through the perineal opening. The fibrous sheath of the prostate, covering its posterior and anterior surfaces, is broken into by the finger, the capsule is entered, and the entire prostate shelled out from within its sheath by digital dissection. The inferior and posterior surfaces of the prostate should first be separated from the capsule. The mucous membrane of the bladder and prostatic urethra covering the enlargement, with the underlying muscular tissue, is stripped up from the part to be removed, but is not opened. The lateral lobes are first removed, after which, if there is a middle enlargement or projecting tumor or tumors, these can be pressed downward into the perineal wound and enucleated in the same manner. During the enucleation an assistant can aid materially by drawing the prostate down into the perineum by means of a proper pair of forceps. After the removal of all prostatic growth the bladder and the perineal wound are cleansed by suitable irrigation. A perineal tube is inserted into the bladder through the opening in the membranous urethra. A rubber drainage-tube of moderate size is placed in the bladder above the pubes. The retraction sutures are removed and the bladder is allowed to drop back behind the pubes. The upper part of the suprapubic wound is then closed by sutures and a dressing of gauze pads applied, which is perforated to permit the drainage-tube to pass.

The perineal wound is dressed as after perineal section. The after-treatment consists in daily washing the bladder, the fluid being injected into the suprapubic tube. The suprapubic tube is removed on the fourth day and the lower tube three days later, after which the bladder is washed by a catheter passed through the perineum. A full-sized sound is passed at the end of the second week, and every five days until the perineal opening closes. Both wounds have usually healed in the course of five weeks.

Syms proposes the following modification of this operation, namely, that a laparotomy should be performed, entering the peritoneum just above the vesical fold, by an incision large enough to permit the operator with one hand to press the enlarged prostate well into the perineum without opening the bladder; the rest of the operation to be performed in the manner already described.

With our present methods this would add but little to the shock of the operation, and, if successful, it would detract very much from the dangers following the operation, for the abdominal wound would, of course, be closed immediately, and the treatment of the case would be but little more than the treatment of any ordinary case of perineal section. The abdominal wound should close primarily, and, being small, should permit the patient to soon be got out of bed.

Irrigation and drainage of the bladder may be satisfactorily and easily accomplished from the perineal opening, and the ultimate convalescence of these patients should be much shorter than when the suprapubic opening exists.

A STUDY IN THE TREATMENT OF ACUTE GONORRHEA.

SWINBURNE (*Journal of Cutaneous and Genito-Urinary Diseases*) states that the treatment pursued is as follows: The anterior urethra is thoroughly flushed out with a hot solution of potassium permanganate (1:4000), the temperature ranging from 110° to 115° F., and in some cases even to 120° F., always flushing it inch by inch by grasping the penis between finger and thumb at each point until the furthest point that can be grasped is reached; then only is the fluid allowed to pass back to the cut-off muscle. If the anterior urethra only is involved, the anterior urethra only is irrigated; then the patient lies on a table, and the urethra is gently filled to distention with a two-per-cent solution of protargol by means of the ordinary urethral syringe. The patient grasps the glans as close to the meatus as possible, holding it for about ten minutes. The meatus is then closed with absorbent cotton and gauze bandage, which is thrown away at the next urination. When a patient is receiving his first irrigation he must be carefully watched and immediately

made to lie down to receive the injection. This is done to avoid as far as possible the faintness which may accompany the first treatment.

If the posterior urethra becomes involved the treatment differs somewhat in the different cases. Those who readily learn to relax the sphincter, allowing the bladder to fill from the meatus, are generally irrigated in this way, emptying the bladder immediately. If they do not readily learn this, after the interior injection with the protargol has been made, a soft-rubber catheter, sterilized, 12 to 16 F., having the eye near the tip, is lubricated with glycerin or lubrichondrin and gently passed down the urethra to a point just entering the posterior urethra, and half an ounce of a two-per-cent solution of protargol is slowly injected through it, which the patient immediately urinates out. In some cases it is important to see that the bladder is empty; then the catheter is passed into the bladder, the urine allowed to flow out, and one-half ounce of the protargol injected into the bladder. Then, as the catheter is gently withdrawn, more of the solution is injected through the catheter during its withdrawal. The passing of the catheter thus into the bladder is only done in certain cases where it is evident that the patient does not completely empty his bladder, and in certain chronic cases, but as a routine treatment in acute posterior urethritis it is to be condemned. An important suggestion at this point is that the catheter should not be used while an inflammatory condition of the anterior urethra exists, unless the symptoms in the posterior urethra are of such a degree as to call for immediate treatment; a few days' wait may prove better as a rule.

A valuable aid in posterior urethritis and in some severe cases of anterior urethritis—in cases, further, where, on account of a hypospadias, irrigation is difficult—has been found to be a pill or capsule containing one or two grains of methylene blue and four grains of boracic acid. A rather serious objection to it is the color of the urine, as it may stain the patient's underwear unless great care is exercised by him. In all these manipulations the utmost gentleness is observed and naturally is of the greatest importance, and minute attention to details is also important. The proper performance of irrigation has to be learned, just as the proper method of passing a sound or any other manipulation upon as sensitive an organ as the human urethra has to be learned. In some cases where the acute stage is advanced and the urethra extensively inflamed, if the patient shrinks from the irrigation it is omitted the first day or so, the protargol (beginning with one per cent) alone being used, and the pill of methylene blue and boracic acid given, warning the patient that it will change the color of his urine. Then after his confidence has been gained, irrigation is also employed. The stronger solutions of permanganate have generally proven of too great discomfort in the majority of cases in private practice, and even 1:4000 is not well borne in the posterior urethra in some very few sensitive cases.

The typical course of a case which has come within forty-eight hours after first noting the discharge is about as follows: The first visit is apt to be in the afternoon. The second, if possible, the next morning at eight, the patient holding in his bladder the urine from over night. The discharge at this second visit is slight, and but few gonococci will be found. The next visit is to be at 6 or 8 P.M., the urine having been held at least three hours. The discharge is very slight, numerous pus cells in the field; often, however, no gonococci are found. Next visit the following morning at eight. Some edema about frenum, but no discomfort. Pus cells will be found and perhaps a few isolated pairs of gonococci. The next visit that evening at six or eight; pus cells, but no gonococci; edema of frenum about the same; discharge thin, inclined to be watery, and very slight. The next visit then is made in twenty-four hours; edema almost disappeared; sometimes there is a slight rustiness, due to a tinge of blood, in the very slight watery discharge; sometimes, after long search, one or two groups of intracellular gonococci may be found, and in favorable cases—in fact, in most of the cases of this group—no gonococci are seen again after this. The patient notes that on getting up in the morning there is rather more discharge than at any other time (this, frequently examined, will be found to contain pus, epithelium, and fibrin). Patient comes once each of the next two days, and this finishes the first week. During the second week he comes every other day. He may continue to have a watery discharge, hardly amounting to more than moisture and composed largely of epithelium, though pus cells may still be present. This diminishes steadily during the week. The third week he may be seen twice; then he should report again in seven days. There is then generally no mois-

ture; the first glass may contain a faint floating mucous shred composed largely of epithelium. He then is tested by drinking beer freely, either for forty-eight hours or during the following week, and then presents for examination. He is then told to live his ordinary life, to avoid coitus, and advised to report in a month, but to report at once if anything goes wrong. At this last visit he is carefully examined, prostate and seminal vesicles being examined also. This usually closes the attack.

Of the cases observed there were 105; of these, thirty-four had disappeared from treatment too soon to form any conclusion, some having received only one treatment and others three or four. In some instances friends have reported that they were all right and did not need any further treatment.

Of the cases coming for a longer period there were seventy-one. Those coming with a first attack were forty-six in number; sixteen came within forty-eight hours of the beginning, twenty between the third and seventh day, ten came after the disease had lasted between ten days and three weeks. It is natural to suppose that there should be some differences noted in these different classes; the difference in the average is slight if three prolonged cases in those coming between the third and seventh day are thrown out.

Of the sixteen cases, the average time for final disappearance of the gonococcus was fourteen days; average length of treatment, twenty-one days; one case failed. Of the twenty cases three were prolonged, two practically becoming chronic; in the remaining seventeen the average number of days before final disappearance of the gonococci was seventeen; average length of treatment, twenty-six days. Of the ten cases, the average time for the gonococcus was eleven days; average length of treatment eighteen days. These figures are of but little value, as many of the cases would disappear for a few days, thinking they were all right, and return with a return of the discharge; others would omit a day now and then for lack of time to come.

THE THERAPEUTIC UTILITY OF ANTI-STREPTOCOCCIC SERUM.

There is yet no unanimity of opinion with regard to the therapeutic utility of antistreptococcic serum. Thus BAUM (*Medicine*, January, 1899), on the basis of his own experience and from an analysis of the literature, reached the conclusion that in cases of pure streptococcus infection the serum undoubtedly exercises a favorable influence on the course of the disease. In cases of mixed infection the influence of the serum has been demonstrated, but further trial of the remedy as an adjunct to other treatment is desirable. Considering the grave character of complications of non-streptococcus origin, all indicated therapeutic measures should be employed in addition to the serum. It may be assumed that the serum exerts a direct bactericidal action upon the streptococci, and not merely a stimulating influence upon phagocytosis. The initial dose should be twenty cubic centimeters, to be followed by ten or fifteen cubic centimeters every twenty-four hours, according to the indications. Mackie (*British Medical Journal*, Jan. 21, 1899) reports four cases of generalized septic infection treated with anti-streptococcic serum. In none did the injection of the serum appear to have the slightest effect, beneficial or otherwise. Two of the cases, however, presented mixed infection with streptococci and staphylococci, and two a pure staphylococcus infection.

THE MECHANICAL TREATMENT OF TUBERCULOSIS OF THE SPINE AND LATERAL CURVATURE.

PHELPS (*Post-Graduate*, March, 1899) states that among the chief causes of lateral rotary curvature are heredity, paralysis of the groups of muscles, a short leg, intra-uterine causes, bad position in sitting or standing of the rapidly growing child, injuries to muscles at the time of birth, which prevents their development, twist of the pelvis, producing rotation, bad nourishment and bad hygienic surroundings, and rachitis.

In the treatment of Pott's disease, the principles are extension to relieve pressure and fixation to prevent the trauma of motion—extension to the point of comfort, and fixation with a dressing comfortable to be worn and impossible for the parent to remove. By extension and fixation is meant extension and fixation all the time, both day and night, in bed and out of bed. In lateral curvature there can be only harm done with a steel brace, because it cannot be anchored at the pelvis to make proper lateral support; and a narrow pad or bar is bound to excoriate from pressure, and the patient will remove it.

The same objection holds good in Pott's disease. The anteroposterior lever of Taylor cannot be worn constantly, and then in

cases of the slightest lateral deviation of the spine, it aggravates the deformity by twisting the spine upon its axis, hence the old statement that "the deformity usually increases at first when the brace is applied."

Apply a well-fitting plaster-of-Paris or aluminum corset, and the deformity will not increase. A steel brace to protect Pott's disease is like the first locomotive, that required a man to open and shut the valves at the right time, or things would not go. The plaster-of-Paris or aluminum corset is like the perfected mogul engine that runs without care after the throttle is open.

The application of a steel brace of any make in Pott's disease of the spine, where there is the least lateral deviation, is a practice to be condemned, because such cases invariably increase in deformity, on account of the mechanical conditions. Destruction of bone will certainly increase, whereas if suspension is applied and a properly fitting corset adjusted, no pressure is made at the point of disease, and the rotation will not increase.

In making a plaster-of-Paris corset for Pott's disease or lateral curvature, place under the gauze shirt a "dinner pad," a folded towel, to make room for distention of the stomach. The "cross-bar crinoline" is objectionable for the bandage material, because it carries too much water and interferes, therefore, with the "setting" of the plaster. The best material is the cheapest of crinoline, which contains little or no sizing. It comes in twelve-yard lengths. Tear this in two, making a piece six yards long. This is to be torn up in strips five inches wide. This furnishes the best foundation for the plaster bandage. Only just so much plaster should be rubbed into the bandage as will be retained by the meshes of the crinoline; the plaster should not lie loosely on the bandage. The success of a corset depends very largely upon the first bandage applied. The patient is suspended slightly by means of the chin- and shoulder-straps. The first two or three turns of the bandage are applied snugly around the lower part of the abdomen at the middle and down on the pelvis. Only about three or four bandages will be required for a patient five years old, commencing at the bottom of the corset with each subsequent bandage. Be sure to rub the layers of bandage well together with the hand, so as to get rid of the air; it is not a heavy but a compact bandage that is required. This is a very simple process, but the success of the plaster-of-Paris corsets depends upon the amount of cerebral matter mixed with them.

It is desired to utilize the principle of anteroposterior pressure when necessary, but not in lateral curvature; it is also desired to hold the patient in the suspended position. Press the corset in over the crest of the ilium to prevent it from slipping. These are the main ideas to be followed out in the application of the plaster-of-Paris corset. Now that the plaster is just setting, the body is seized with both hands on either side, and counter-pressure is made between the vertebræ, placing the weight of the body upon the transverse and articular processes. But it would not do to leave the bandage this way, for it would soon cause excoriation. Remove the "dinner pad," and then press the corset a little anteroposteriorly over the abdomen. In this way the corset is slightly "sprung" away from the anterior superior spinous processes, and excoriation is thus prevented. Of course the corset will need be trimmed off a little at the top and bottom. A sharp knife is the best instrument for cutting away soft plaster-of-Paris corsets. Another important practical point in applying plaster-of-Paris bandages to fractured limbs is that if a plaster bandage while still soft is cut nearly through, and then an ordinary bandage applied, much less difficulty will be found in removing the plaster bandage. The plaster-of-Paris corset is applied over a long stockinet shirt. The lower portion of the shirt can be turned up over the corset, thus giving it a nice finish.

In regard to the treatment of lateral curvature of the spine, the principles involved are entirely different from those of Pott's. In Pott's disease a permanent corset is applied for the purpose of fixation and extension. In lateral curvature the support is applied for the purpose of fixation and extension during the time the individual is in an erect position; it is removed at night, and gymnastics with proper breathing exercises should be done while the patient has on his support, because greater benefits are derived from this method than from removing the support during gymnastics. In lateral curvature of the spine the principle of treatment is extension and fixation to relieve pressure at the point of curve, which prevents the further absorption of bone. Gymnastics, muscular and respiratory, are used for the purpose of strengthening the spinal muscles, increasing the capacity of the thorax, and aiding in forming compen-

satory curves. Nearly all cases of lateral curvature of the spine in which the deviation from the median line is more than one-half of the diameter of the body of the vertebræ should be braced, else absorption of the vertebræ from pressure is bound to go on. Phelps states that he has seen hundreds of these cases treated by the best gymnasts of the Ling method and other methods of gymnastics from the hands of the best orthopedists, and they have almost invariably given a history of increasing deformity. It is for this reason that he urges the profession to brace the class of cases designated with a proper fitting plaster-of-Paris corset or an aluminum corset. The aluminum corset is an ideal spinal support. The wood corset, the author believes, would fill the requirements in all cases, but he found that every form of wood corset would change its shape, as do also the sole-leather, rawhide, felt, celluloid, and paper corsets. The patient will invariably shorten during the warm weather with these dressings, but with a plaster-of-Paris or aluminum corset this shortening will not be observed, and the test of any support is the question of how much taller it makes a patient. An aluminum corset has this to recommend it: it will not change its shape, it is almost indestructible, and when well shellacked the perspiration will not affect it. It is light and perforated, which makes it a very cool corset in the summer-time, being made entirely of metal. Patients with Pott's disease of the spine wearing the aluminum corset are enabled to go in bathing at the seaside during the summer months, which is a very great advantage.

In regard to the operative procedure in lateral curvature of the spine, where very strong bands of muscles are found stretched across the curves, such patients are to be etherized and these muscles divided. Frequently two to six inches is gained by an operation of this kind.

SARCOMA OF THE BRAIN SUCCESSFULLY REMOVED.

CARLE (*Revue de Chirurgie*, Feb. 10, 1899) removed a sarcoma from the left frontal lobe of a patient who suffered from motor aphasia paralysis of the hyperglossal nerve and of the lower branches of the facial, together with marked diminution in the intelligence. Two and a half years after operation the patient was perfectly well, with unchanged intellectuality. The only remaining sign of trouble was slowness of speech.

NON-MALIGNANT ULCERATIONS OF THE ESOPHAGUS, WITH ESPECIAL REFERENCE TO SIMPLE PERFORATING ESOPHAGEAL ULCER.

RUSSELL (*Scottish Medical and Surgical Journal*, April, 1899), after calling attention to the slight notice accorded simple ulceration of the esophagus in English and American text-books, contributes an admirable study of the affection.

Perforating ulcer of the esophagus presents practically the same anatomical features as ulcer of the stomach. If it be small in size, it retains the classical appearance of sharply-cut, shelving edges; if large, the ulcer tends to become annular, surrounding the tube, or sometimes irregular. It may or may not perforate all the coats of the esophageal wall. The condition of the periesophageal tissue seems to depend on the length of duration of the ulcer. In some cases, such as Flower's, the ulcer perforated the aorta before any new fibrous tissue had formed between the tubes. In other cases we read of dense adhesions between the esophagus and neighboring organs.

If cicatrization has taken place, the ulcer is represented by a puckered white radiating cicatrix similar in appearance to healed ulcer of the stomach.

Esophageal ulcer occasionally occurs concomitantly with gastric or duodenal ulcer. In such cases the diagnosis is still more difficult.

The records do not throw much light on the etiology of simple perforating ulcer. Several facts, however, may be gathered from them. The condition differs from gastric ulcer in the following points: (1) Males are much more frequently attacked than females; in twenty-three cases seventeen were males, six females. (2) It is a disease of middle and advanced life. The patients' ages range chiefly from forty to sixty-seven years. In only five cases were the patients under thirty-five. (3) Anemic conditions are not mentioned as concomitants of the disease.

Syphilis and habits of intemperance have been noted in several of the cases, but there is no evidence that either of these is an important etiological factor. In some of the cases the ulcer appears to have caused death in persons who had previously presented no pathological symptom.

The pathology of the condition rests in the same position as that of ulcer of the stomach.

Quincke named his cases *Ulcus esophagi ex digestione*, and believed them to be due to the

action of regurgitated gastric juice. Similarly another writer entitled his paper "Peptic Ulceration of the Esophagus." Debove and Berrez, however, believe that this view of the causation both of gastric and esophageal ulcers is untenable, and hold that the cause is still undiscovered.

It is very apparent from the cases recorded that there is no symptom absolutely pathognomonic of esophageal ulcer. Unfortunately, too, in many instances the condition gives rise to no symptoms, or to symptoms so slight as to be entirely overlooked, until the condition of the patient suddenly passes beyond the power of treatment. Still, in many instances it is quite evident that the patients' lives might have been saved had the cases been diagnosed and proper treatment undertaken.

The first symptoms usually appear to be pain on or after taking food, and vomiting of the matter ingested. The pain in most cases is situated either between the shoulders, behind the sternum, or in the back at the level of the lower dorsal and upper lumbar vertebræ. Pain is also occasionally present in the epigastrium. The pain usually begins as the food is being swallowed; sometimes, however, it is not complained of as occurring so early.

Later on in the disease the course of events is that the patient begins to have difficulty in ingesting food, the food being at once regurgitated from the esophagus as soon as the act of deglutition has taken place. At the same time hematemesis, more or less severe, is a common symptom. Berrez says that the hemorrhage is never so severe as it may be in gastric ulcer, from the fact that the esophageal vessels are so much smaller than those which run on the surface of the stomach. In the cases recorded where hemorrhage has been sudden and fatal, the cause was always perforation into the aorta or one of its branches.

In spite of the apparent obstruction in the esophagus, usually at this stage no actual constriction can be discovered on passing a sound.

The condition may then either begin to progress towards cure, or may cause the death of the patient, the fatal termination being due either to perforation of some important structure or to the debility caused by the hemorrhage and inability to swallow or retain food. Perforation, if it occurs, is most commonly into the air-passages. Perforation of the pericardium, pleura, or one of the great vessels has been reported.

If the ulcer goes on to cicatrization, a severe stricture may be the result, and may cause death of the patient from slow starvation. Thus the patient in the early stages of the disease may suffer from *apparent* stricture, and later require treatment for *actual* stricture, of the esophagus. The cases of Debove are good illustrations of the latter stage of the disease. In each of these cases the patient was evidently not far from a fatal termination when treatment was commenced.

Cancer of the esophagus and ulcer of the stomach are the diseases with which simple esophageal ulcer has been most frequently confounded, and in many of the cases recorded it would have been very difficult to make any other diagnosis.

Hemorrhage from the esophagus may be due to varicose veins. This condition is chiefly seen in cases of cirrhosis of the liver. The possibility of diagnosis between simple perforating ulcer and the other forms of non-malignant ulceration would depend almost entirely upon the presence or absence of a definite history or diathesis, which might lead one to suspect on the one hand the effects of a foreign body or irritant poison in the esophagus, or, on the other, ulceration of a tubercular or syphilitic nature.

In sounding the esophagus one must bear in mind the possibility of being misled as to the presence or absence of stricture, by the sound passing into a diverticulum. Perforation of the air-passages would be indicated by the patient immediately beginning to cough after swallowing food, and later by the development of a septic condition in the lungs.

Treatment must be carried out on general principles. The ulcerated area must be saved from irritation as much as possible by the giving of bland foods, aided by rectal alimentation, and if the condition be obstinate, by the formation of a gastric fistula. If there be any suspicion of syphilis, antisyphilitic remedies should be tried in the first instance.

If a stricture has formed, dilatation should be performed, provided the ulcer appears to be healed, but if hemorrhage is still going on, and there is much pain, it would appear to be wiser to give the esophagus rest for a time before undertaking dilatation. In some cases surgical intervention by way of the posterior mediastinum might be of great

value. After perforation of the air-passages there might still be some hope for the patient in the formation of a gastric fistula, but perforation of the pleura, pericardium, or aorta must almost of necessity prove fatal.

A CONVENIENT TECHNIQUE FOR THE DELIVERY OF THE AFTERCOMING HEAD WHERE GROSS DISPROPORTION EXISTS.

STAHL (*American Journal of Obstetrics*, April, 1899) reports a case of labor delayed by hydrocephalus, in which he decapitated, turned the head, perforated it by means of blunt scissors, evacuated the liquid contents, and delivered without difficulty and without the slightest injury to the mother.

Given one hundred cases presenting the usual malconditions as to pelvocephalic disproportion, the advantages will be found to lie with the perforation and extraction of the advancing head rather than with the perforation and extraction of the aftercoming head, for, however masterful the obstetrician, the following conditions will obtain:

1. The cephalic parts in the aftercoming head are more difficult of access.

2. The avenue of approach, because of its embarrassment, is more awkward for operation than when clear of obstacles like the neck and trunk.

3. The assistance required is greater and more complicated.

4. The length of time of operation is longer.

5. The evacuation and breaking down of the brain is accomplished with less facility.

6. Extraction of the aftercoming perforated head manually or with instruments requires greater and more delicate efforts.

7. The dangers from slipping of instruments, ruptures, lacerations, and pressure inflammations are greater.

8. With the aftercoming head choice of vantage puncture is limited; the head cannot be turned or adapted as emergency or advantage may suggest. In the advancing head, and more especially when decapitated, the head can be turned, without difficulty or danger, into any form of presentation desired, so that any point, as a fontanel or suture, may be chosen for attack.

9. The extraction of the aftercoming head presents more difficulty for the general practitioner, as well as for the specialist, than does the extraction of the advancing head.

10. As Winternitz declared, decapitation, turning, excerebration, and extraction (his case with craniotomy) requires, comparatively speaking, little time.

A short excerpt of Stahl's case is as follows: Parturient, thirty-two years old, well and healthy appearing, had four labors within four years, all with assistance. First labor: Forceps, difficult, at pelvic outlet; neonatus died a few hours postpartum. Second labor: induction of labor at thirty-third week; spontaneous delivery of 2840 gramme child; died one day after. Third labor: prolapse of cord and foot; reposition; spontaneous delivery of premature child; lived. Fourth labor: occipito-posterior presentation; premature; forceps at pelvic outlet; lived. Fifth labor, present case: A generally contracted pelvis with a conjugata diagonalis of 9.9 centimeters; conjugata vera, 7.5 to 7.7 centimeters; position first breech; membranes ruptured at 12 midnight; breech soon appeared; extraction difficult; right arm extracted with fracture; head high above superior strait; notwithstanding strong tractive attempts, did not descend; attempts made to perforate; no room in vagina for perforator; while attempting to perforate a profuse hemorrhage occurred, due to premature separation of placenta; pulse became small, face blanched, the patient threatened to collapse; decapitation, turning, perforation through vertex; hemorrhage still continued; applied cranioclast, soon delivered head; prematurely separated placenta immediately followed head; uterus contracted firmly, hemorrhage ceasing; one hour and a half postpartum, after various stimulation, the patient could safely be committed to the nurse's care; puerperium normal; neonatus 3500 grammes.

Kilian in 1849, Fehling in 1889, both warned against exerting such traction upon the trunk as to separate it from the head. Under normal conditions and under moderate disproportion this suggestion is a very good one. Here, if the head be not spontaneously delivered, manual methods alone usually develop it. But where gross disproportion exists this objection need not stand, as decapitation with perforation, etc., may be performed as readily—more so, no doubt—as perforation, etc., of the aftercoming head with trunk still attached.

Will this method of decapitation and extraction prove as successful when dealing with the normal head as with the hydrocephalic? The author thinks so, and that it should yield as favorable results. If it were necessary the turned, perforated, collapsed,

thus advancing head could readily be disarticulated and extracted with the light, small Meigs or Mesnard forceps, and with less embarrassment than when crushed and spiculated with the heavy machinery of the cephalotribe.

REPORT OF NINE ABDOMINAL SECTIONS FOR EXTRA-UTERINE PREGNANCY.

HIRST (*American Journal of Obstetrics*, April, 1899) last year reported twenty-one operations for extra-uterine pregnancy. He has had since then nine more, making a total experience of thirty operations. These last cases teach no new lessons. There were, however, several interesting cases among the number. Two were apparently only fourteen days advanced, judging from the size of the tumor and the clinical history. One of the specimens showed a swelling of the tube not over half an inch in its longest diameter, and yet the amount of blood in the abdominal cavity in this case was unusually large. In another case, in which the woman had already given birth to twins twice, there was every evidence of a coincident intra-uterine pregnancy, which had not yet been interrupted by the operation. The patient had not menstruated since the operation, and the uterus was steadily enlarging, but it was too early to elicit positive signs of pregnancy. One of the cases had an extraordinary history, and was operated on for a pus tube on one side. The other tube and ovary, carefully inspected during the operation, were dropped back unmolested, as they appeared perfectly healthy. Four and a half weeks later there were symptoms which under any other circumstances would have been recognized as those of tubal pregnancy, but such an idea did not occur to the author. After three or four such seizures in the next five or six days a mass appeared in the pelvis involving what had been the healthy tube and ovary. The supposition was that an infection had traveled up from the uterine cavity; the abdomen was reopened, and a ruptured extra-uterine pregnancy found. The woman must have been impregnated immediately before entering the hospital, and in the first operation a tube with an impregnated ovule in it had been handled, naturally without suspecting it. Of the thirty patients three died, one of cirrhosis of the liver and gastritis, a chronic drunkard, in the Philadelphia Hospital; the other two of acute anemia—they had practically bled to death before the operation was attempted.

HYSTERECTOMY FOR PUERPERAL SEPSIS.

HIRST (*American Journal of Obstetrics*, April, 1899) has averaged for the last few years at least four hysterectomies a year for puerperal sepsis. During the past winter he has had three such operations, and in addition has had a number of other operations for puerperal sepsis. Recently he had a case in which an incision was made over the groin and another in the loin, washing out a quart of pus by through-and-through drainage.

There is no such thing as specific operation for puerperal sepsis. One is occasionally obliged to remove a necrotic or gangrenous uterus, just as he would be obliged to remove a foot of gangrenous intestine. We might as well expect a patient to get well with such a uterus left in the body as to expect her to recover without removing a gangrenous portion of gut. These necrotic uteri have the consistence of cheese. Nothing holds in them. They are perforated easily by the finger-tip. The whole uterus is one vast nest of streptococci, and it would be just as sure to kill a woman, left in her body, as an enormous injection of a virulent culture.

The author has had twelve hysterectomies for puerperal sepsis with one death in the last three years, which is a good illustration of what can be done by operation. One of the cases was brought into the hospital with a temperature of 104°, pulse 140. She was intensely emaciated and had that grayish color of the skin which we see in advanced cases of septicemia. There was a large mass filling up the whole of the pelvis. When the abdomen was opened it was found that the tubes and ovaries were involved, the broad ligament being an inch thicker than normal, and the uterus so soft that it could be pinched through between the thumb and forefinger. Everything was taken out—the tubes, ovaries, and as much of the broad ligament as could be gotten away. The woman made a tedious but good recovery, and is now perfectly well. These cases, of course, need the freest kind of drainage with both gauze and tube.

Another case was one of criminal abortion. The patient came into the Howard Hospital with a rapid pulse and hectic fever. She was operated upon, and the uterus was found perforated in one place. The whole pelvis was full of stinking pus. All the pelvic organs were taken out. She made a good recovery.

In another case the patient had a temperature of 104°, the pulse was 140, and the woman was almost comatose. She seemed to

recognize nobody and only replied to questions asked in a very sharp tone of voice. She was as far gone as any patient in sepsis whom the author has ever seen recover. The abdomen was opened and the uterus and other pelvic organs taken out. The wound was drained with both gauze and tube. The broad ligaments were so thick that no mass ligature could be applied. The bases of the broad ligaments were left open. The whole pelvic cavity was packed with gauze and a large glass tube was placed in Douglas's pouch. This was replaced in forty-eight hours by a rubber tube, through which the pelvic cavity was irrigated daily with sterile water. Within twenty-four hours of the operation the woman's temperature was below 100°, consciousness returned, and her pulse was under 110, and from that moment she had no bad symptoms. A sinus remained for some months, but gradually closed, and she is now perfectly well.

These are types of cases which need hysterectomy, and without that operation they are absolutely doomed. The author thinks this proposition is unassailable.

The woman whose uterus was exhibited, the author stated, was no worse than many he has seen get well. It is the only case that he lost from an operation for puerperal sepsis in the last three years. The uterus had, when it was taken out, the characteristics which have been described. Although the seat of infection was removed and the operation quickly done, the patient died. The result is no argument against the procedure. It is impossible to be successful invariably in such desperate cases. That woman could not have recovered without the operation; it gave her the only chance she had.

GANGRENE FOLLOWING THE APPLICATION OF ORTHOFORM SALVE.

MIODOWSKI (*Münchener Medicinische Wochenschrift*, No. 12, 1899) reports a case of sloughing following the application of five-per-cent orthoform salve. A woman, sixty-eight years old, suffering from an old varicose ulcer of the leg, having been treated by a zinc preparation, complained of violent pain radiating to the knee, and so severe as to interfere with sleep. A five-per-cent orthoform salve was applied to the ulcer, with the result of almost immediately relieving the pain. The patient was able to sleep comfortably. Upon inspecting the wound about a week later, a large slough was found in the position of the ulcer; the latter had extended. In this case (as far as the report of it goes) it is not fair to conclude that the gangrene was due to the orthoform salve. It is noteworthy, however, that the application relieved the severe pain of the inflamed ulcer.

AMYLOFORM AND IODOFORMOGEN AS SUBSTITUTES FOR IODOFORM.

HEDDAEUS (*Münchener Medicinische Wochenschrift*, No. 12, 1899) was asked by Czerny to test these two drugs. The amyloform is a chemical combination of formaldehyde with starch. It is stated by Bongartz to be free from irritating qualities, non-toxic, strongly disinfectant, and with a marked effect in diminishing secretion. This opinion is corroborated by Heddaeus. The drug is not soluble, hence can be used only as a powder. It can be either dusted on the wound or insufflated. A number of illustrative cases are reported, showing the excellent results of the drug. In many tuberculous affections the rapid disinfecting power of the amyloform was clearly proven. In no instance was there any irritant effect, such as ezema, observed. When it was applied to large granulating surfaces there was often felt at first slight burning. No intoxication symptoms were ever developed. It is commended by the author as a thoroughly admirable, efficient, antiseptic dusting powder, which in many cases can substitute iodoform, and which, because of its absolute freedom from irritating properties, is to be preferred to many of the newer antiseptics. Its most important action is the cleansing power it exerts on suppurating wounds, and hence its principal application will be found in the treatment of superficial suppurative affections.

Iodoformogen, a preparation of iodoform and albumin, is a clear yellow powder, insoluble in water, and almost without odor. It contains ten per cent of iodoform, and since it is prone to decompose, forming iodine, it should be kept in dark bottles. Iodoformogen was used in a large number of cases, some of which are reported. It was found to be decidedly antiseptic, markedly lessening the secretion, favoring the formation of granulations, and exerting a specific influence on tuberculous processes. It is ranked as next to iodoform in this respect. The author states it is doubtful whether it will entirely displace iodoform. It is much less toxic than iodoform, and is devoid of the unpleasant odor of this drug.

THE RELATIONS OF A MOVABLE KIDNEY AND APPENDICITIS.

EDEBOHLS (*Medical Record*, March 11, 1899) proves by his clinical and operative work that chronic appendicitis is present in from eighty to ninety per cent of women with symptom-producing movable right kidney. This frequency constitutes chronic appendicitis one of the chief, if not the chief, symptom of movable kidney.

Chronic appendicitis by reason of its frequency, the protracted suffering and serious impairment of health which it entails, and the dangerous possibilities of implanted acute attacks of appendicitis, may be considered the most important complication of movable right kidney.

Twenty per cent of all women have movable kidney or kidneys; four per cent have appendicitis; and while three and one-half per cent have both symptom-producing movable kidney and appendicitis, only one-half per cent have appendicitis and well anchored kidneys. The startling nature and importance of the conclusions to be drawn from these statistics do not invalidate the latter.

Satisfactory investigation of the relations of movable kidney and appendicitis became possible only after the discovery and elaboration of the writer's method of palpation of the vermiform appendix. It remains impossible to those not practically familiar with the method.

Chronic appendicitis may be the only symptom of movable right kidney.

Some of the symptoms commonly ascribed to movable kidney are often in reality due to the concomitant appendicitis.

The relations existing between movable right kidney and chronic appendicitis are those of cause and effect. A movable left kidney never produces appendicitis.

Movable right kidney probably produces chronic appendicitis by indirect pressure upon the superior mesenteric vein, the return circulation of the appendix being hampered by compression of the vein between the head of the pancreas and the spinal column.

Chronic appendicitis associated with movable kidney shows no tendency to resolution or spontaneous cure, with restoration of a normal appendix, while the right kidney remains movable. The only cure possible under these conditions is by slow progress to appendicitis obliterans.

In twelve of the writer's cases of coexisting movable right kidney and appendicitis, the appendicitis apparently ended in resolution and remained permanently cured after right or bilateral nephropexy, without any attention to the appendix.

Recovery from appendicitis after right nephropexy may only be expected in cases in which the associated chronic appendicitis is of comparatively recent origin.

In a minority of cases only of associated movable right kidney and chronic appendicitis will either nephropexy alone or appendectomy alone meet all the indications. The majority of patients require both operations to restore them to full health. Both operations, right nephropexy and appendectomy, may be simultaneously performed through one lumbar incision extending along the outer margin of the erector spinæ muscle from the twelfth rib to the crest of the ilium.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

Since my last letter the election of President of the College of Physicians has come and gone. Somewhat to the surprise, but none the less to the satisfaction, of the faculty, Dr. Church, senior physician of St. Bartholomew's Hospital, has been elected; his most serious opponent was Sir William Broadbent, but the College has probably done wisely in selecting the candidate who has the greater amount of leisure available for its affairs.

It is gratifying news to learn from official returns that the "conscientious objector" to vaccination has not after all proved to be the danger that was anticipated. As a matter of fact it is now beyond question that with house to house visitation and the general employment of glycerinated calf-lymph, vaccination is decidedly on the increase. Under these circumstances the Antivaccination League must in the nature of things redouble, and have indeed already redoubled, their efforts to propagate their vain doctrine. Meantime the Jenner Society has urged upon the President of the Local Government Board the desirability of giving effect to two very practical proposals: first, that the certificate of successful primary vaccination should in all cases record "the number of separate scarified areas, punctures, or groups of punctures made, and the number of separate normal vaccine vesicles which have been produced," and should be registered and kept as

a permanent record; secondly, that the certificate should bear on its face some statement of what in the opinion of the Local Government Board constitutes "efficient," as distinguished from "successful," vaccination, so that parents or guardians who refuse to have their children vaccinated according to the standard so prescribed may at least be informed of the responsibility they incur in so doing.

At the Clinical Society on April 1 modern surgery was very much *en fête*. The President related a case of aneurism of the abdominal aorta successfully treated by the introduction of silver wire. Although this operation has been several times attempted, the number of successful cases is, I believe, extremely small. In this case the attempt seemed to be justified by the position of the aneurism at the commencement of the abdominal aorta, which seemed to preclude other less hazardous methods of interference. The sac was first punctured by a trocar and cannula, and not much blood issued when the trocar was withdrawn; five feet of silver wire was then introduced through the cannula. The puncture was obliterated by means of a silk ligature. It is now a year since the operation, and the large aneurismal sac has shrunk into a small hard knot in the middle line. All the diagnostic signs of aneurism have disappeared, and the patient's symptoms are completely relieved.

At the same meeting Rutherford Morison, of Newcastle, showed a remarkable series of cases illustrating the result of operations for pyloric obstruction. A case of pyloroplasty shown was one of nineteen cases in which Morison had operated successfully for relief of simple stricture of the pylorus. The incision was made 1¼ inches from the pylorus, and a guide passed through it; then an incision was made through all the coats, and so sutured as to make the line of union transverse to the incision. The five remaining cases were patients for whom pylorectomy had been performed for malignant disease. Looking at the patients it was difficult to believe that each was without some portion of the stomach, up to as much as one-half of the organ. The dyspeptic might well ask why Nature has cursed him with this malevolent and useless organ. There was no room to doubt the character of the disease with which the operator had had to deal, as both the portions removed and microscopic sections of them were laid before the audience. In these cases Morison had obtained end-to-end anastomosis of the stomach and duodenum instead of closing the cut ends of both organs and making an overlapping anastomosis. The uniform and almost invariable success of the operation in the cases in which Morison had performed it more than compensated for the fact that the operation was in no sense a new one.

A year or two ago Dr. Washbourn recorded in the *British Medical Journal* some interesting and satisfactory experiments with an antipneumococcic serum he had prepared, and recounted also two cases of pneumonia in which the serum appeared to have been employed with marked benefit. Since this Dr. Pane, of Naples, has prepared an antipneumococcic serum in large quantities, and Washbourn has recently experimented with this. Pane's sera are of two strengths, and Washbourn has shown that the stronger of these two standardized sera has practically the same protective influence against cultures of the pneumococcus as his own serum had. These results justify us in looking for an extended therapeutic application of antipneumococcic sera in various affections of pneumococcal origin.

An interesting communication was read by Dr. Maguire to the Medical Society of London on "Death from Functional Nervous Disease." The cases he seeks to include in this category are those in which the only system at fault appears to be the highest nervous centers, and that without a trace of organic disease. Thus senile decay falls outside the category, as here almost without exception one can point to deterioration of some one or other somatic function, usually that of the heart. In the cases recorded by Maguire death was in each case preceded by a period of unconsciousness of greater or less length, and the most careful examination failed to exhibit disease of any organ, or the existence of any toxemia. In some of the cases there was positive evidence of severe mental strain preceding the symptoms. Dr. Maguire attributed death in these cases to exhaustion of gray matter. The likelihood of this explanation is confirmed by the analogy of the protracted periods of unconsciousness which not infrequently follow the epileptiform seizures in general paralysis of the insane, where the higher nervous centers fail from organic disease. If Dr. Maguire's speculations be correct, it behooves every physician to foster in his patient the spirit of hopefulness. Thus the sense of impending death is of little importance in the young and

acutely ill, so long as the recuperative powers are active, but of grave ill omen in the old and in those enfeebled by protracted disease.

At the Royal Academy of Medicine in Ireland a paper was read dealing with the effects of minute quantities of sodium chloride on the secretion of urine. Solutions of sodium chloride of less than one-per-cent strength were injected into the external saphenous vein of dogs in quantities varying from thirty to fifty cubic centimeters. Urine was collected from both ureters by means of cannulæ both before and after the injection of the salt solutions. The results showed: (1) A marked increase in the amount of urine secreted, which reached its maximum in the second hour after the injection, but had not wholly subsided even at the end of four hours. This increase far exceeded the amount of fluid injected. After making allowance for this quantity, the average of ten experiments showed an increased output of over 300 per cent. (2) Both the total nitrogen and the urea also suffered an increase, though the urine secreted was more dilute. The increased output of solids reached its maximum in the hour immediately following the injection. These effects were not due to dilution of the blood nor to a hydremic plethora caused by the injection, nor could they be ascribed to the necessity of getting rid of the sodium chloride, as in many cases the actual output of chlorides was diminished.

The medical officers of health by the mouth of Dr. Hill have brought a grave indictment against the provision merchants of the metropolis. Most of the articles of food in daily consumption appear to be contaminated to an alarming degree with antiseptics. Milk, butter, and cream appear to be habitually deluged with boric and salicylic acids; so also sausages, hams, tongues, and the various tinned meats. On the whole we prefer to have our milk and butter free from decomposition even at the expense of a few grains of boric acid, but to find that some samples of butter contain as much as eighty-four grains to the pound gives one pause. There can be no doubt that the habitual ingestion of boric acid, particularly in infants, provokes various catarrhal ailments, while salicylic acid must be admitted to be an actively dangerous drug. The medical officers of health call on us to rise against this wholesale system of adulteration, as other countries have done. Let us not, however, follow the example of France, where adulteration is strictly prohibited except in the case of exports, which are adulterated to a degree unknown even in this country. In the course of the discussion Mr. Carsal, a public analyst, stated that he always took up the position in a court of law that "if a substance were present in quantity sufficient to exert an antiseptic action it must *de facto* inhibit digestion, and therefore it must if of any use be harmful." As the propounder of this contentious thesis Mr. Carsal is to be congratulated on the fact that medical men—and in particular specialists in diseases of the stomach—are exempted from serving on juries. The reasonable position seems to be not to forbid the use of preservatives, but to insist on a clear declaration of the nature and amount of the preservative employed.

Experiments in the treatment of Malta fever at Netley Hospital with the serum antitoxin have so far given satisfactory results. The treatment must needs be carried on at present in the face of considerable difficulties, as it cannot be said that as yet we are clear as to what Malta fever is, or rather what is not Malta fever. One finds all the various fevers of the Mediterranean seaboard roughly drafted into this category, but research has shown that these include several distinct varieties; even cases of typhoid fever and malaria are now and again dubbed Malta fever. Apparently we are clear as to the identity of the organism, and with that ascertained beyond dispute we should be well on the way to elaborating an effectual antitoxin. Every physician will admit that the therapeutic armory contains no drug of any peculiar benefit in the treatment of a case of Malta fever.

Liverpool has shown the way to London in the establishment of a School of Tropical Medicine. London it is true is not far behind, thanks to the energy of the Colonial Secretary. Last week the inaugural ceremony in connection with the Liverpool school was held amid great enthusiasm. The clinic of tropical diseases at the Royal Southern Hospital is even superior to that of the Seamen's Society in London, and with the admirable Thompson-Yates laboratories for research, and with Major Ross at the head of affairs, the school starts its existence under the happiest auspices.

Special attention is due to the report in the last number of *Brain* of the discussion at the Neurological Society on the localization of intracranial tumors. The discussion served to show the many doubts and difficulties in the matter of accurate localization,

more particularly in the silent areas of the brain. It was abundantly evidenced that the site of the headache in cases of frontal and cerebellar tumors was subject to the widest variation, and could not be relied upon in localizing, but that in the presence of other signs of a cerebellar tumor, headache referred to one or other side of the frontal region usually indicated a tumor on the opposite side of the cerebellum. Optic neuritis tends to be rapidly developed, and of highest intensity in tumors of the posterior fossa; if the neuritis be unilateral, or more intense on one side than on the other, the side of greater intensity is usually that of the lesions.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

A recent operation performed by Dr. Doléris, accoucheur-gynecologist of the Paris hospitals, and accoucheur of the Boucicault Hospital, tends to show that appendicitis may exist without causing any very serious symptoms. A patient, aged forty, was operated upon, and a fibromatous uterus, containing a small portion showing signs of mortification, was removed. The second day after the operation slight indications of peritonitis became apparent, and on the sixth day the patient died. On examination the appendix was found to be perforated, showing a fistula in a very much thickened wall, and a certain amount of thick pus was discovered behind the cæcum. On examining the written report of the case it was seen that the patient said she had suffered from severe colic five months before. This case of appendicitis had developed after the operation, without giving rise to any very accurate symptoms, with the exception of a slight degree of tympanites in the lower abdominal region. The operation had been performed *per vaginam*, and in the post-mortem examination no signs of pus or any abnormal conditions were to be found in the vaginal incision.

Dr. Grillot, assistant of Dr. Letulle, chief physician of the Boucicault Hospital, presented recently to the Society of Anatomy, at a meeting held on April 28, the report of a case which died ten minutes after having been received at the hospital, death being due to a ruptured varicose vein of the external malleolar region of the left leg. Dr. Letulle, who is with Cornil, the most noted pathologist in France, examined the case histologically and found union of the skin and of the varicose vein on a level with the ulceration. This observation shows that though infrequent, hemorrhage from such causes may result fatally.

A question of some importance is whether salicylate of sodium has a preventive action on the occurrence of pericarditis in an attack of acute rheumatism. Dr. Delearde, professor at the Faculty of Medicine of Lille, stated recently in an article on this subject that he thought it the best means of preventing such manifestations. A certain number of rules should, however, be followed out. The first is to prescribe this drug in large doses from the very beginning of the illness. In the adult six to eight grammes should be given daily at first; for the child, fifty centigrammes to a gramme under one year, two grammes from two to five, three grammes towards six years, three to four grammes between six and ten, four to five above that age. Such doses should be given in fractional amounts every three to four hours, as this salt is readily eliminated—for an adult, say a gramme every three or four hours. A third rule is to continue the salicylate at half the above doses for about ten days following the disappearance of the articular pains. This precept comprises all the preventive treatment of rheumatic pericarditis, as this affection does not show itself at the beginning of the attack but later on, and sometimes when the pain has quite disappeared. The best formula according to the author is the following:

Salicylate of sodium, 6 grammes;
Cognac, 10 grammes;
Syrup, 40 grammes;
Water, q. s. ad 150 grammes.

To be taken in large spoonful doses in twenty-four hours.

Recently quite a fright was produced in Paris by a report having been spread that an epidemic of bubonic plague had broken out in a large establishment of dry goods, well known to our readers under the name of the Bon Marché. It seems an anonymous letter had been sent to the *préfet de police*, in which it was stated that five employees of the Bon Marché, whose duty it was to examine oriental carpets, had died from this disease. This news was quite false, and the condition of health amongst the Bon Marché employees has been excellent. It is hard to say whether jealousy was the cause of this alarm; however, one can readily understand that such a report would be apt to injure the sales for at least three or four days.

Dr. E. Perrier, of Paris, has indicated recently a new treatment for the cephalalgia of adolescents:

1. When the pain comes on give from one to three of the following capsules every half-hour: Hypnal, 0.20 to 0.40 centigramme.

2. Every morning a glycerophosphate preparation.

3. Before each meal give in a small glass of malt extract eight to twelve drops of the following mixture:

Tincture of nux vomica, 2 grammes;
Tincture of badian,
Tincture of gentian, āā 0.50 gramme.

4. The food taken should be rich in phosphates: phosphated milk, lentils, beans, good bread, eggs, brains, fish, meats, etc.

5. Stop all mental work and send the child to some elevated country, eight hundred meters above the sea level.

Dr. Ch. Leredde, chief of the laboratory at the St. Louis Hospital, has recently published an article on the treatment of eczema by nitrate of silver. This method has already been used by Dr. Besnier, of the St. Louis Hospital, in the treatment of old circumscribed lichenoid forms of eczema. The author has sought to apply this treatment to extended varieties of eczema, especially when eczema of the hands is present. The mode of application depends somewhat on the stage of the eczema. One point is to use the various methods indicated in the internal treatment, such as cathartics, milk diet, alkalines. Another is to let acute forms which are progressing arrive at their final stage, so long as the cutaneous edema is on the increase. All sources of irritation should be suppressed as much as possible. Once the eczema is fully come out a thin sheet of rubber should be applied on the skin previously sterilized by compresses of boiled water. Four times a day the rubber is taken off and washed with boric acid water. The skin is washed with boiled water. In this manner all infection is obviated, and in case there is the slightest trace of suppuration, the rubber should be removed and compresses applied. Under the influence of the rubber the eczema perspires freely, and twenty-four hours after the application a solution of nitrate of silver 1:40 is applied. This solution is allowed to dry on the surface of the skin, and the rubber is replaced. The following day a 1:30 solution is used, and after two or three days the physician is able to use a 1:15 solution. Generally no inflammatory reaction is perceptible, and in such cases a day may be skipped, and the inflammation goes down. If at the end of this treatment the skin is slightly retracted, the use of oxide of zinc ointment is sufficient to relieve this condition. The author adds that he knows of no treatment which is so apt to produce rapid and beneficial results.

When the acute period is over and the edema is disappearing, the treatment is to be modified to a certain extent, and as an example the author cited what should be the best treatment in a case of eczema of the hands. Complete asepsis is a *sine qua non* and should be obtained by applications of compresses with boiled water, or rather water charged with boric acid or bicarbonate of soda in five-per-cent doses. In two or three days the asepsis is complete, and even if there are any traces left of boils, for instance, the eczematous surface may be cauterized with the exception of the afflicted part. Cauterization is then made with a saturated solution of nitrate of silver, and immediately after a small crayon of pure zinc is passed over the surface. A black precipitate of silver is thus produced. The surface dries very rapidly and remains black three or four days. A second cauterization is made after three days, a third the sixth day. So far the author's experience has not shown him any untoward results. Between two applications some heavy ointment is applied, such as:

Vaselin, 10 grammes;
Oxide of zinc, 5 grammes;
Talc, 5 grammes.

Or,

Vaselin, 10 grammes;
Dermatol, 6 grammes.

Amelioration is very rapid, but a thing to be noted is that on no account should the patient wash his hands; he can cleanse them with bread or with almond paste. After a time the epidermis comes back to its original condition, but there remains a certain thickening which cannot be removed by the use of nitrate of silver. In such cases the application of a salicylic ointment is useful; for instance:

Lanolin,
Vaselin, āā 6 grammes;
Oxide of zinc, 3 grammes;
Salicylic acid, 60 centigrammes.

Or,

Glycerite of starch, 20 grammes;
Oil of cade, 2 grammes;
Oil of white birch, 1 gramme;
Extract of quillaia, q. s.;
Juniper extract, 5 drops;
Vanillin, 3 centigrammes.

The latter preparation is rather disagreeable on account of its odor.

ROME LETTER.

By J. J. Eyre, M.D.

The Health of the Pope—Partial Resection of the Abdominal Sympathetic, Performed by Professor Ruggi, of Modena—Hyposulphite of Sodium and of Mercury for Hypodermic Injections in Syphilis.

The late illness of the pope has given rise to so much interest throughout the world, and to so many false statements as to his condition at the time of the operation and subsequently, that the following account obtained from the very best sources may not be devoid of interest for the readers of the Therapeutic Gazette. On February 21, Leo XIII., who completed his eighty-ninth year on March 2 ult., was taken ill with general malaise, rise of temperature, and severe pain in a cyst which had existed in the left flank, immediately above the crest of the ilium, for upwards of twenty-five years without causing much, if any, inconvenience. The holy father's physician, Professor Lapponi, on his visit the following morning, found that his august patient was suffering from inflammation of the cyst, and he requested a consultation with Professor Mazzoni, *libero docente* of special pathology in the University of Rome, and nephew of the late Professor Mazzoni, the predecessor of Professor Durante in the chair of surgery of the same university. The result of the consultation was that Mazzoni enucleated the cyst on the morning of March 1, having previously anesthetized the part with the ether spray and the subcutaneous injection of cocaine. This method of local anesthesia was adopted because it was not considered advisable to administer chloroform to the pope owing to his great age. Leo XIII. bore the operation admirably, and in the evening the temperature had fallen to 99.5° F., from 102° F. in the morning; the pulse was good, and the general condition satisfactory. Professor Mazzoni has told me that the cyst was hematic, of the size of a large citron or of a fetal head at term; it was not suppurating. After the extirpation Mazzoni plugged the cavity and brought the edges of the skin wound together with strips of plaster, as the doctors thought that the introduction of stitches would be too painful. The following day the tampon was removed and the edges brought together with plaster. Since then the pope has made an uninterrupted recovery. For about a month after the operation he naturally suffered from some weakness, due to the loss of blood and the effects of the operation, but on April 16 his holiness was so well that he was able to be present in St. Peter's at the mass celebrated in commemoration of the twenty-first anniversary of his coronation, notwithstanding that the Rome correspondent of some of the English papers had stated a few days before that he was in a hopeless condition! Leo XIII. bore the fatigue and excitement wonderfully well, which is somewhat surprising considering his great age, his apparently very fragile and pallid appearance, which is habitual, and the extraordinary enthusiasm displayed by the 50,000 people present when the pope entered and left the Basilica.

At the last meeting of the Medico-Chirurgical Society of Bologna Dr. Nasi read a paper on "Partial Resection of the Abdominal Sympathetic, Performed by Professor Ruggi in the Surgical Clinic of Bologna." The reader stated that Professor Albertotti had already communicated to the Society that Ruggi had performed several sympathectomies of the neck for the treatment of glaucoma. These, to the number of six, had been performed in the ophthalmic clinic of Albertotti. Ruggi, having observed how just was the observation already made that the glaucomatous sufferers experienced immediate relief from their sufferings with resection of the sympathetic in the neck, thought of attempting a similar operation for cases of abdominal neuralgia rebellious to the ordinary methods of treatment. On February 23 Ruggi performed resection of the abdominal sympathetic in a woman who for a long time had suffered from a very acute pain in the left flank, which was associated with a feeling of heat and a trembling of the whole of the left half of the body. These phenomena having increased, the patient was admitted to the Clinica Chirurgica in December, 1898, where it was found that she was suffering from right ovaritis and left salpingo-ovaritis, and Ruggi performed left salpingo-oophorectomy and right oophorectomy. After the operation the patient was better, but in February she came again to the clinic, as the pain had returned as severely as at first.

The second patient operated upon with resection of the abdominal sympathetic had been formerly treated by other surgeons with scraping of the uterine cavity and amputation of the neck, and in the surgical clinic had been subjected to bilateral ovarian resection and shortening of the round ligaments

with Ruggi's method, because she suffered from double ovaritis with marked retroflexion. But the suffering that this patient also endured from continuous pain over the whole abdomen, and radiating to the lower limbs and to the right upper limb, obliged her to return to the clinic, where she had undergone vaginal hysterectomy on January 4 for extremely painful chronic metritis. This operation, however, did not relieve the patient, and on March 6 resection of the abdominal sympathetic was performed.

Professor Ruggi performs this operation in the following manner: The patient is placed in Trendelenburg's position; the abdomen is opened from the pubes to the umbilicus, and even beyond if the patient be very fat. The intestines being displaced upwards, the pelvis is easily dominated; the operator notes what is found there, and having observed nothing abnormal, he proceeds directly to the resection of the nerve branches. The surgeon being on the left, he generally commences from this side the quest of the nervous bundle of the sympathetic which forms the so-called spermatic plexus, that comes from the renal plexus and in part from the aortic plexus; it accompanies the spermatic artery and is distributed on each side in the male to the testicle and the epididymis, in the female to the ovary and the superior part of the uterus. With this scope, then, the operator divides the peritoneum opposite the spermatic artery and the pampiniform plexus, and having isolated the neurovascular bundle, which is very easily detached from the underlying parts, he passes under it a gauze band of the breadth of two fingers, capable of raising it and keeping it well distended. By this means the spermatic artery can be uncovered with care, and in Ruggi's cases it was isolated, ligatured above, and divided, while the remainder of the neurovascular bundle, formed of the inferior portion of the artery, the vein, the nerves, and the lymphatics, was ligatured below and partially extirpated. Having thus interrupted the vessel communications above and below, the operator can be certain of avoiding both arterial and venous hemorrhage, and he also has the certainty of having divided all the nerves which accompany those vessels, without constricting them above with a ligature that might irritate them with its necessary constriction.

Both patients thus operated upon—the first after twenty-two days, the second after eleven days—had an excellent postoperative course, and were completely free of the sufferings by which they had been for so long a time tormented.

Dr. Miceli, of Messina, after many researches directed to the scope of obtaining a preparation of mercury very soluble in water, of ready efficacy, and which would not provoke either pain or induration in the parts where it has to be injected, has succeeded in preparing his antisyphilitic hypodermic solution, which he says fully responds to the above requirements. Miceli's preparation is a new salt (double hyposulphite of sodium and of mercury), in the form of a solution in distilled and sterile water. The liquid is without color or odor; each cubic centimeter contains one centigramme of the salt, equivalent to about nine milligrammes of metallic mercury. The solubility of this salt exceeds that of all other salts of mercury—in fact, it has a solubility of 50.4 per cent, and does not produce mercurial stomatitis. Thus in fifteen cases treated by the author it never appeared, excepting in a patient who had had twenty-five injections in as many days. The hypodermic solution never produces indurations, is more ready in its efficacy than the other preparations of mercury, and owing to the hyposulphite of sodium it contains (whose antisyphilitic virtue has been extolled by many authors, including Sullien and Radcliffe) is also reconstituent; indeed, the patients subjected to this treatment increased in weight. Miceli's solution is carefully prepared under his immediate surveillance, and is put up in bottles, each sufficient for twelve injections. It is used with the rules which regulate the injections of other mercurial preparations.

QUININE IN MALARIA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: This communication is for practitioners, and deals not with theoretical knowledge; it is only a clinical note, chiefly from bedside experience.

Natchez is on a bluff overlooking the lowlands of Louisiana, and from her swamps and bayous we draw our greater share of cases of typical malaria, and all cases of hematuria.

In the simple intermittent fever quinine is undoubtedly a specific; but when cured, and no change is made in the environments—as with the cotton planter of the lowlands on both sides of the river—reinfection is certain to take place, and in these cases quinine, in usual doses, is extremely dangerous. All

cases of hematuria of malarial origin occurring under my observation (in whites) have been due to reinfection and followed the protracted use of quinine. One or two grains dissolved in half a drachm of dilute phosphoric acid is of benefit in preventing a second invasion, and is a tonic of superb power. I use something like the following:

℞ Quininæ sulphatis, ʒ ij;
Tinctura ferri chloridi, ℥ j;
Acidi phosphorici dil., ℥ iv;
Spiritus frumenti, q. s. ad ℥ viij;

M. S.: Teaspoonful in one-third glass of water at meals.

Now as to the treatment of hematuria, when found. I use ergot in half-drachm doses every three or four hours,* and strychnine hypodermically in full doses. I flush the bowels with the hyposulphite of sodium, and I have found an emulsion of turpentine of service in some cases. If the patient is restless and fretful, an enema of sixty grains of potassium bromide is of unquestioned utility. The patient is always anxious, and his mind is very quick. To allay his anxiety and keep his spirits up is a task for us to perform; but it must be done, and a stimulant is a great aid. For this panapeptone will be found useful. When the urine clears up and fever and weakness disappear, strychnine and arsenic should be given as a tonic, and elixir of calisaya or tinctura cinchona compositus at meals as an appetizer. Above all, change the location of the patient.

I have treated eight cases thus, or about as indicated, with no deaths. Three of the cases were caused from catching fish from shallow mud-holes—ponds. The persons would wade out in the pond and spear the fish. These ponds are common in flat countries after an overflow, and as they gradually get smaller, towards the last they literally swarm with a fish of the "sucker" variety. These, half-cooked, are almost certain to produce a variety of ailments, and among them hematuria, in which we also find epistaxis, hematemesis, and occasionally hemorrhage from the rectum—in fact, a general tendency toward hemorrhage.

The other manifestations of malarial infection in which quinine is contraindicated are as follows: (*a*) Fever without well defined rigor; (*b*) fever of slow invasion and increasing (or typhoid) temperature; (*c*) fever of no defined intermission; (*d*) a dried and concave tongue; (*e*) a thick, purplish tongue; (*f*) a tongue with narrow strips of coating on each edge, and angry center; (*g*) a tongue with a narrow strip of coating in center, and thick, dark-red, almost strawberry, edge; (*h*) slow pulse. This last is a sign of profound infection.

The worst case of malarial fever I ever saw recover was a child ten years old. The family was wealthy, and every attention was given. His case was of the continued type. The afternoon temperature for seven days ran above 105⅜°; the morning temperature was generally 103½° to 104°. The pulse ranged from 92 to 108.

The so-called typhomalarial fever is a malarial fever in which quinine is entirely useless, save in small doses as a tonic. It is typhoid *only* in range of temperature. Not another symptom of typical typhoid fever is found, and the cases rarely extend over ten, twelve, or fifteen days. Rare cases are found lasting weeks, with small rise of temperature daily. The patient frequently spends only an hour or two in bed, and eats what he likes. I have seen only two cases, but both recovered.

As to infection of malaria. In the delta country (Yazoo—Mississippi River) it is dangerous to go out after dark on account of a damp fog that is seen lying along low places. I am also firmly persuaded that mosquitoes are carriers of infection.

The experience of the most successful doctors in this country is against the use of quinine in hematuria. All say that with it, used freely, almost all cases die, but without it nearly all recover. The "swamp doctors" are a unit in this, and their success certainly shakes our confidence in the quinine treatment.

In conclusion I will say that I have never seen a case of intermittent fever that would not yield to an acid solution of quinine, if a cathartic is used to begin treatment. For this I use:

℞ Hydrargyri chloridi mite, grs. x;
Podophyllin and ipecac, of each, gr. j;
Extracti nucis vomicæ, gr. ss;
Extracti hyoscyami, grs. iv;
Sodii bicarbonatis, grs. xij.

Ft. capsule No. vj. Sig.: One hourly till two are taken, and repeat every third day.

Experientia docet. We do *not* use quinine in the hemorrhagic forms of malarial fever, and are now successful, whereas we were failures with quinine.

J. C. Ballard, M.D.,
Chief Health Officer.
Natchez, Miss.

* I notice Professor Da Costa also commends its use in malaria. *Vide Medical News.*

—THE—

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Original Communications.

*INTERMEDIATE ALTITUDE FOR THE CONSUMPTIVE INVALID.**

BY B. P. ANDERSON, M.D.,
Colorado Springs, Colorado.

The object of this paper is simply and briefly to call attention to the writer's experience during the past few years with a class of patients afflicted with pulmonary disease, such as have been recommended to and have tried both extremes of altitudes without obtaining appreciable benefit; and also to record as nearly as possible the subsequent histories of these cases.

It is to be taken for granted that the majority of the medical profession, and especially the members of this society, recognize (notwithstanding the indorsement and advocacy by individual members, enthusiastic and otherwise, of the various drug, serum, and other treatments advised for the relief of pulmonary phthisis) that the greater benefit to be expected must be from climate, and that climate alone offers the most salutary and most permanently beneficial result.

We must admit that the different climatic resorts act more or less favorably according to

*A paper read before the American Climatological Association, May, 1899.

the constitution, temperament, and actual condition of the individual case; also it must be admitted that in no climate with which we are at present familiar can such perfection be found as to justify the opinion that each and every case will receive the relief that is sought. No one climate can be considered as a "cure-all," the panacea for each and every individual case. No matter how honest our intention, how zealous in arriving at a proper discrimination and selection, the fact confronts us that the matter of climate is largely one of experiment, and that no man can advance a positive opinion as to the result to be derived. The reason for this is obvious. The history and nature of disease, however similar its manifestations, cannot be successfully treated and combated in any two persons by the same methods or by the same routine remedies. This more particularly holds good as to climate and its effects upon different individuals who may be suffering with the same disease. Take, for instance, two cases of pulmonary lesion, identical in every respect as to personal temperament, amount of area of disease, general symptoms, etc., and we find that the one will steadily lose ground; the disease, instead of becoming arrested or retarded, will advance. Often, if ordered to another and essentially different climate, benefit and frequently ultimate recovery will result to the failing patient.

With accumulated experience, furnishing evidence that location as to climate, altitude, etc, is the important factor as to results, manifestly it becomes necessary and of vital importance to the patient for the physician to advise changes of location for that class of cases failing to improve or become benefited.

As before stated, we admit advantages possessed by different degrees of altitude. We can only arrive at results beneficial or otherwise by individual experiences, and the progress, good or bad, of the individual case. Approximately high altitude to-day, as for the past several years, is recognized as possessing superior advantages and offering results to the average pulmonary invalid of the greatest permanent benefit. The high altitude climate of Colorado, or Colorado Springs, with which I have had experience for the past twenty-eight years, is especially adapted to and curative in the majority of incipient cases of phthisis (of whatever variety or type). Therefore we point with pardonable pride to the unchallenged fact that the reconstructed or cured invalid has been primarily the means of founding an empire, has brought his environment from that of a barren plain, or rugged, inaccessible mountain fastness, to the civilization of to-day—a densely populated region with all that goes to make the desirable in culture, refinement, and education. When we consider that the pulmonary invalid has alone brought this to pass, we can more fully appreciate the possibilities of climate as a factor in the cure of this disease. There are cases seeking this climate and altitude, however, which do not receive the expected relief. Many invalids whose physical condition, area of disease, and length of time affected would presuppose a favorable diagnosis yet find the altitude affording no relief, but on the contrary often proving disastrous. Perhaps the result cannot be traced (as many may be) to imprudence and mode of life, overindulgence in exercise, etc. My experience has been that in some of this class of cases benefit is received by change to an *intermediate* altitude, and for the past several years I have urged such cases to seek temporarily an altitude of from 3000 to 4000 feet above sea level, and if benefited to remain until all active symptoms disappear. Following this advice, the rule has been that such cases were enabled to return to the higher altitude of Colorado Springs, and upon the second trial improvement continued.

Experience has again taught the pertinent fact that the class of cases coming under observation which do not improve or show evidence of a subsidence of active symptoms after a residence of five to six weeks will not be benefited by longer stay, but on the contrary will continue to lose ground, and should be ordered a change at once.

In advocating the change to a lower or intermediate climate, I would be understood as meaning those cases which we term curable, or at least in which a favorable prognosis has been given. In the selection of the most favorable climate for such cases, I was largely aided by having my attention called some eight years since to the Mesilla Valley, in New Mexico, a valley situated about forty-five miles northwest of El Paso, Texas. Invalid patients coming to Colorado for the cooler summer months after having spent the winter in this valley were the first to attract my attention. Their enthusiasm as to dryness, sunshine, the greater number of days one could remain in the open air, etc., all of which advantages we have here in Colorado, did not impress me so much as did the

fact of their improvement, which could only be attributed to the advantage of altitude, which averages from 3500 to 3800 feet, combining with its lower altitude the important essential of a maximum amount of sunshine and dry air. Commencing with the fall and winter of 1892, I have regularly advised those patients who for the most part did not progress favorably in Colorado to seek this climate. Since 1892 I have a record of somewhat more than 200 cases who spent the winter months in this climate. My record embraces many cases in the various stages of advancement of disease, and many were complicated with laryngeal tuberculosis. The subsequent history of these cases shows that a large majority, or seventy per cent, improved and are still living. In the first few weeks upon making the change to the lower altitude, marked improvement was noted in every case. Active symptoms which persisted in the higher altitude subsided, and there immediately followed a gain in flesh and strength. The majority of these cases returned to Colorado for the summer months, and a few returned for shorter visits to their homes in the East. Many of these cases after having spent from one to three winters in this intermediate altitude find that a return for permanent residence in the higher altitude of Colorado is productive of no ill effects, but on the contrary continue to improve and are permanently benefited by the change. These cases upon reexamination were found to have gained complete arrest, freer expansion, greater elasticity of lung tissue, and normal respiration.

Appended tables accompany this paper, but I will not burden you with their perusal; they give maximum and minimum temperature, together with cloudy, partly cloudy, and fair days, for the years beginning with 1892 to 1899 inclusive. Patients inform me that they are enabled to remain out-of-doors the majority of days from October to May, and from the hours of 9 A.M. to 5 P.M. The disadvantages are to be found (as obtains in most cases in New Mexico) in the lack of suitable accommodations, diversion, etc.

Briefly, and I am aware not concisely, I have given my experience with a class of patients the majority of whom tried lower elevations, such as some of the southern resorts, California, etc., before coming to Colorado, but who failed to receive benefit previous to attempting the intermediate altitude.

The selection of the proper climate for the individual case is appreciated as of the greatest and first importance, and yet how difficult! It has been said long ago that the "individual result depends on the individual." No man can predict with absolute accuracy in sending a patient from home just what the result will be. I have known of apparently hopeless cases, which were advised to return to their homes with the expectation of certain death in a few months, persist in remaining, and living for years in Colorado after such advice had been given. A few years since a physician, who was then residing in Colorado Springs, and who had served on Surgeon-General Esmarch's staff during the Franco-Prussian war, walked into my office and informed me that he had been invited by a United States Army officer to accompany him overland to Fort Davis, Texas, a distance of several hundred miles. The man was apparently in the last stages of phthisis. The whole of the left lung was involved, together with the apex and to the third rib of the right. There was a large suppurating cavity in the upper lobe of the left. The physical condition was one of emaciation and prostration. I frankly told the doctor that he would not live to reach Santa Fe, one-fifth of the distance. He persisted in starting on the journey, and not only reached his destination, but improved to such an extent as to receive the appointment of acting assistant surgeon. He lived for seven or eight years afterwards, and I am informed died ultimately with some affection of the heart.

It is my belief that climate and proper environment and professional advice is the most rational, and I may say the only, remedy. If the individual finds a climate that proves efficacious in his special case, whether it be high or low altitude, that is the climate in which he should remain as long as necessary to effect recovery.

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*HYDROTHERAPY IN THE TREATMENT OF INSOMNIA.**

By Irwin H. Hance, M.D.,
Lakewood, New Jersey.

Insomnia, whether observed as a diseased condition unassociated with any other complaint or as an accompanying symptom of neurasthenia, is sufficiently often met with to warrant me in presenting to the members of this Society a short *résumé* of my past season's work. Insomnia of itself will quickly

*A paper read at the meeting of the American Climatological Society, May, 1899.

produce the neurasthenic state with its long list of vague nervous symptoms, and the physician is sooner or later forced to look for some form of treatment which will combat the two diseases. Most of us know how unreliable drugs are under such circumstances: first, because of the uncertainty of securing a definite result; and secondly, on account of the great risk run by the patient that he may contract some bad drug habit, whereby sleep is secured at the time, but the subsequent awakening brings with it the startling realization that he is the victim of one of the enslaving drugs, to escape which he must battle harder than ever man did against the evils resulting from loss of sleep.

"Sleep is a condition of physiological cerebral anemia." Insomnia, although occasionally met with as a disease *sui generis*, always indicates a disturbed condition of the nerve centers, and, exclusive of sleeplessness in acute diseases, is usually merely symptomatic of some other disease. In all cases there exists some disturbance of two of the chief systems of the body, the nervous and the circulatory. Therein lies the main indication for treatment — improvement of the cutaneous circulation and of the nerve cells. At the same time each case must be carefully inspected for any local cause that may produce reflex nervous conditions, and by appropriate treatment these must be lessened and eradicated if possible. In so far are drugs and a proper diet powerful agents for good, as will be shown in two of my reported cases. Bearing in mind these things, let us see how we can most surely and satisfactorily influence these bad conditions. Even in the milder forms of insomnia the most careful treatment must be pursued, since it is so very difficult to prognosticate the result in this as in all other nervous affections.

To secure the best results it is wisest for the patient to change his environment, allow himself physical and mental rest, exercise out of-doors only to the point that he is not unduly fatigued, abstain from all varieties of food that produce indigestion, regulate the bowels; and the physician should examine the patient so carefully that no slight disturbance of any one of the organs escapes his attention. Having thus regulated the patient's life to the best of our ability, we must seek to restore his deranged nervous equilibrium, if possible entirely without or with the scant use of hypnotic drugs. We have at our command two agents for this purpose, water and electricity. How these are applied and with what results I shall proceed to describe by my cases, and afterwards draw a few conclusions based on personal observations.

CASE I.—Female, aged thirty-three. Simple insomnia. She occupies a position of great responsibility requiring much mental labor and executive ability. For several months past she had been sleeping less and less, until two or three hours was the limit of each night's rest. From lack of sleep she was physically weak and in a generally run down condition. A physical examination showed all the organs and functions healthy. No symptoms of neurasthenia were present. On January 11, 1899, I ordered her treatment to be a hot-air bath to perspiration, a needle spray and a general fan douche, a jet douche along the spine, followed by general static electrization (positive) with local breeze along spine. The effect of treatment was felt after the third bath. She slept longer and awoke in the morning refreshed and stronger. After twelve treatments she slept six hours each night.

On January 27 she was in New York four nights and slept badly; but the first night in Lakewood slept seven hours. I continued the treatment for two weeks more, and she left practically cured five weeks after treatment began. She has given up all work until next fall, and she reported to me two months later that the cure has been lasting.

CASE II. — Female, aged forty-five She had no occupation, but suffered from insomnia more or less for fifteen years. For five years past she has been a distinct neurasthenic with basic headaches, scattered neuralgic pains, tenderness along spine, marked insomnia, no appetite, and a very bad circulation. Her treatment was a hot-air bath to perspiration, needle spray, general fan douche, and a jet douche along spine. She took ten treatments. Marked general improvement followed the first bath. After the third she slept well every night and gained five pounds. She stopped treatment herself because she felt that she was cured. I know she has remained well over two months.

CASE III.—Male, a lawyer aged fifty. From overwork he had gotten into an extremely bad neurasthenic state and slept only two or three hours nightly. He had an old specific history. I treated him by hydrotherapy and massage last year for a similar condition for six weeks with good result. When his stomach was examined an excess of hydrochloric

acid was found. He was treated by diet and medication in the hands of a specialist, but he lost fifteen pounds during the fall and became hypochondriacal. On December 29, 1898, the treatment was begun. Positive electrization was ordered, with hot-air bath to perspiration. A circular needle spray, general fan douche, and jet douche was applied to back. At first one to two grains of codeia used to produce sleep. After ten treatments he slept seven and a half hours without any sedative. At the end of four weeks he slept continuously six to seven and a half hours. February 3 he was discharged, averaging six hours sleep. He had gained six pounds, and his general condition was much improved. He was no longer apprehensive of the future.

CASE IV.—Male, merchant, aged thirty-six; Austrian Jew. He was markedly neurasthenic, with depression and slight melancholia, and had suffered from insomnia for six months; averaged three hours sleep or less nightly. There was an excess of hydrochloric acid in his stomach secretion. On January 16 four baths were given without any effect; then positive electrization was begun and used daily with bath treatment (hot air, circular needle spray, general fan douche, and jet to back). Little effect was produced upon insomnia during first two weeks. His general nervous condition, however, improved. During the third week his sleep improved. On March 11 his gastric symptoms were noted as improved, he was resting six hours nightly, and had gained three pounds. "Hardly feels any nervousness." He now decided to continue his business, which at one time he had intended to give up in order to return to Austria.

CASE V.—Male, aged thirty-eight; a priest. For ten years he had been a sufferer from insomnia. He had tried drugs, the Kneipp cure, and for three months in Adirondacks took a bath daily in cold spring water for ten minutes without friction. He was neurasthenic, with mental depression and distinct melancholia. He took ten treatments, consisting of hot-air bath, circular needle bath with hot-water jet applied to legs, general fan douche and a jet to back, and positive electrization. Out of eleven nights during which he was under treatment, he enjoyed seven good nights' sleep, and one night slept nine and a half hours. Was obliged to discontinue treatment, and has not been heard from since.

Besides the above reported cases I have had two distinct failures, both in female melancholic neurasthenics, one of whom refused to pursue the bath treatment, and two months later developed violent melancholia. The other pursued the bath treatment alone for four weeks with slight general improvement, but with very little effect upon her insomnia.

In two patients who were treated with the electric baths and friction, followed by the circular needle bath and the general fan douche, a somnolent condition resulted from each bath, and though the patients were not suffering from insomnia their rest was more refreshing after the treatment. In some other cases where a hyperesthetic condition existed, the dry or the cold wet pack was used in place of the hot-air bath, to be followed by the douche-room treatment.

Let us for a moment consider what we accomplished by the treatment described and what deductions we are entitled to draw therefrom. By the bath treatment there is one thing that is capable of ocular demonstration to every physician and also to the patient himself, viz., an improved cutaneous circulation, as shown by an improved reaction to the eye and the loss of the sensation of cold extremities. With this surface improvement there must result a general toning up of the whole circulation and a better action of all the secretory organs of the body. The direct result of this must be a changed condition and bettering of the nerve cells throughout the cerebrospinal centers and also in the vasomotor system, whereby the symptoms which we vaguely ascribe to functional reflex disturbances become less and less, and finally lose their power for evil. We must not forget another factor, the proper application of which is almost the key-note of success in treating such cases; this is the shock to the nervous system from the change in the temperature and the pressure of the water. The stimulating effect of the shock upon the nerve centers is felt even in the simplest form of tonic baths, and by slowly increasing this through gently lowering the temperature and raising the pressure we avoid any chilling of the patient. We must secure his cooperation in the treatment thereby, and by ultimately being enabled to administer a stronger stimulus produce a more decided reaction and more lasting effect.

What part does static electricity take in the ultimate result? I can answer this best by the brief statement that during the first year of my work in hydrotherapy I had not

the means of making use of this agent, and although in two cases of distinct insomnia with neurasthenia I finally secured a general improvement of the patient and thereby an effect upon the sleeplessness, yet the influence upon the insomnia was slow in manifesting itself. During the second year by hydrotherapy and electricity combined I could see a distinct effect upon this condition in many cases in a few days, and in nearly all at the end of two weeks' treatment. I am convinced that hydrotherapy and static electricity together are more powerful in affecting insomnia beneficially than either one is individually.

With these two means it seems to me we are justified in concluding that we are capable of so far restoring the deranged nervous equilibrium, improving the nutrition and resisting powers, toning up the circulation and increasing the muscular power and action of the heart, stimulating the secretory and excretory organs, that nature is capable of adjusting the balance between the demands upon the nervous system and the exhaustion which must necessarily ensue from the constant wear and tear of life in the business and social world of to-day.

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*DANGERS OF HYDROGEN DIOXIDE IN SURGERY.**

By George W. Spencer, M.D.,
Demonstrator of Surgery, Jefferson Medical College, Philadelphia; Assistant Chief, Surgical Clinic, Jefferson Hospital.

My object in presenting this paper is not to discourage the use of peroxide of hydrogen in all surgical cases; but I am confident that a careful analysis of the cases of which I am about to speak will convince you that there are certain conditions in which peroxide of hydrogen, if used at all, must be applied with caution.

My first experience of the unfavorable action of this drug was in a case upon which I operated through the courtesy of Prof. J. Chalmers Da Costa. The patient suffered with a carcinoma of the left breast with axillary involvement; a considerable portion of the skin was also affected, and, necessarily, this was removed. After the operation it was impossible to entirely close the wound, and a small portion about its center was left to heal by second intention. By the ninth day the stitches were out and the scar was perfect, but there remained a small place which was healing by granulation. On the seventeenth day following the operation the patient was discharged from the hospital and ordered to report to the surgical dispensary for the treatment of exuberant granulations, which were gradually becoming smaller.

When patient appeared at the dispensary, three weeks after the operation, a small sinus existed. It was about two inches in length, and from it came a small discharge. To keep the sinus clean peroxide of hydrogen was injected, and this was followed by bichloride of mercury. For four consecutive days these fluids were used, and each time it was noticed that it took more of the bichloride solution to fill the sinus than had been necessary on the previous occasions. On her seventh visit to the dispensary, I probed the wound and found that the two-inch sinus had increased to three and a half inches in length and other sinuses were springing from it. Shortly after this, while injecting peroxide, I noticed a swelling which appeared almost instantaneously beneath the axillary scar. This enlargement was about half the size of an egg, and, by pressing, one could hear crackling and feel tissue crepitation. Pressure caused the swelling to disappear almost as rapidly as it had appeared. Pressure at this point caused bubbles of gas to escape at the opening of the sinus, which was fully four inches from where the swelling appeared. Tissue crepitation was not only elicited in the axilla, but it could be induced by pressure at several other points. Inflammation, which was heretofore absent, now made its appearance, and soon the whole area was nothing less than a bag of pus.

In this case there is no doubt that the expansive force of the peroxide made new channels and forced and deposited pyogenic organisms into these channels from the original two-inch sinus. After incising at several points, draining, and discontinuing the peroxide, the patient made a good recovery.

While a resident in the Jefferson Hospital I had under my care three cases which were made considerably worse by the use of this agent. The first case was an old woman, a portion of whose large bowel had been resected by Professor Hearn for carcinoma. The patient rallied rapidly from the immediate effects of the operation. On the fourth day following two stitch abscesses developed on the right side of the abdominal incision. I incised both abscesses and syringed out the cavities with peroxide. Previous to the injec-

*Read April 12, 1899.

tion of peroxide the inflammation was circumscribed and limited. In twenty-four hours there developed cellulitis on the right side of the abdomen, extensive and violent in character. The right side was swollen and tender, and pressure elicited crepitation; gas also could be detected in the tissues. By making forcible pressure at any fixed point, bubbles of air could be seen making their exit at the openings in the abscess cavities. In this case the gas eliminated from the peroxide seemed to travel in the subcutaneous areolar tissue, and it carried infection from the abscess cavities into the surrounding tissues.

The other cases in which trouble occurred were operated upon by Professor Montgomery. They also had stitch abscesses, and in both instances the abscesses were incised and injected with peroxide of hydrogen. The first of these two cases presented similar conditions to those we have just described; the other was quite different, and at one time the condition became alarming. In the last case the gas traveled in the planes of the muscles,and deposited between them the infectious material, producing distention, crepitation,and a profuse chocolate-colored discharge without discoloration of the skin. The odor was so foul that it became necessary to make multiple punctures, and wash out with sulphurous acid. In this case the rapidity and intensity of the process were so great that the muscular tissue seemed to become extensively necrosed, and the last case presented the clinical appearance of malignant edema.

In November, 1897, a physician from the upper part of the State was brought to Professor Keen's private hospital with symptoms of septic infection. The patient had operated upon a case of appendicitis which had been followed by general peritonitis. On the back of his right forearm were two or three scratches. Three days after the operation his arm began to swell and to pain. A physician had made two incisions, one just above and the other just below the elbow. These incisions were made to communicate. From such incisions a good deal of bloody serum, but no pus, had passed. Peroxide of hydrogen was injected. Three days after this injection Professor Keen made incisions in the forearm, and found pus in all the intermuscular planes. There were no enlarged glands in the axilla, and this seemed to prove that the infection was not traveling by the lymphatic vessels, but remained just where it had been deposited by the peroxide. Professor Keen thinks that the trouble in this case was caused by the peroxide of hydrogen.

Many members of the medical profession who work in minor surgery use peroxide as a routine practice. They seem to have perfect confidence in its safety, but I have seen a number of cases treated by this agent made worse by its injudicious use.

A few years ago, while investigating wounds of the hand, I saw not a few cases of palmar abscesses, which followed wounds of the little finger and thumb. The majority of these abscesses, it is probable, were caused by peroxide carrying infectious material through the theca of the flexor tendons and depositing it in the palm of the hand. If one considers the anatomy of the hand, it becomes evident that, by the arrangement of the two lateral portions of the palmar fascia, wounds of the little finger and thumb must be more dangerous than wounds of the other fingers, and that it is unsafe to use, in infected wounds of these members, any agent which has the power to forcibly disseminate infectious material. The lateral portions of the palmar fascia are composed of thin fibrous layers, one going to cover the muscles of the little finger, the other going to cover the muscles of the thumb. These layers practically form drainage-tubes and are continuous with the palmar and dorsal fascia. By this one can see how easily infection can be conveyed by an effervescing agent from the thumb or little finger to the dorsal or palmar surface—the path of least resistance.

In this city in June, 1897, Drs. Turnbull and Bryan presented papers to the Section on Laryngology and Otology at the forty-eighth annual meeting of the American Medical Association upon operations on the mastoid process. In the discussion on the papers Dr. Burnett said: "In the histories of all the cases reported as acute otitis media, followed by acute mastoiditis, I can read between the lines that the mastoiditis is a secondary infection, and in some cases I can see that the ear was overtreated and secondary infection followed." He also stated that he believed, in many instances, the secondary inflammation was caused by the use of peroxide of hydrogen, and that acute mastoiditis following otitis media has become much more frequent since the introduction of peroxide. He closes his views on the subject by saying that he knows no agent so efficient in forcing pyogenic germs into an inflamed ear as the expansive, energetic peroxide.

Dr. J. A. Stucky, in the same discussion,

said that he had seen many cases of acute mastoiditis caused by the use of peroxide of hydrogen in middle-ear troubles, and he considered it a dangerous remedy.

Dr. H. D. Hatch (*Journal of the American Medical Association*, March, 1898) said that he once had a lesson as to the explosive force of peroxide of hydrogen. In working upon a tooth his instrument slipped under the tissues almost to the eye. The wound healed and was apparently all right, but later an abscess formed well up toward the eye. There was no swelling around the eye, except at this small point, and there was no wound in the mouth. He slipped a bistoury into the abscess and injected peroxide of hydrogen. Inside of twelve hours after the injection, which had caused intense pain, the face was swollen and the eye black. He has ceased to inject peroxide into any cavity into which there is a small opening. He has had other cases where the mechanical force of the explosion gave pain. He also thinks it unwise to inject it into a bone cavity.

Janeway (*American Journal of the Medical Sciences*, October, 1898) reports an interesting case in which air emboli caused two attacks of temporary hemiplegia, the result of injecting a wineglassful of peroxide of hydrogen into the sac of an empyema. The sinus which led to the cavity had so far closed that no air or fluid escaped after the introduction of the peroxide.

Peroxide not only proves dangerous as an agent which is capable of carrying infection, but it possesses the power of acting mechanically in certain regions and of inducing distressing, as well as dangerous, conditions.

In 1894 I opened a deep abscess in the neck of a child. At the second dressing one of the assistants at the dispensary injected a fifteen-volume solution diluted two-thirds into the abscess cavity. At the time the solution was injected there was nothing unusual connected with the case. A few minutes later Prof. J. Chalmers Da Costa saw the patient (Prof. J. Chalmers Da Costa's book on Modern Surgery, pp. 27 and 105), and there existed then a condition of dyspnea and cyanosis. On introducing the fingers into the mouth of the patient he found a pharyngeal obstruction. The gas formed by the peroxide had worked its way down and seemed to have gotten under the mucous membrane of the pharynx and larynx, thus causing the lumen of these organs to be diminished to such an extent as to produce an impediment to the ingress and egress of air. In this case the external wound was enlarged and the peroxide was ejected by internal pressure.

The mechanical action exerted upon the tissues by this agent, during effervescence, is far greater than is supposed by many to be the case. It possesses the power to travel in relaxed tissues, along nerves, in the tendon sheaths, and in the planes of the muscles. For this reason it is unsafe to use it in infected wounds in certain locations, with or without pus, in abscess cavities either acute or chronic where the walls are supposed to be weak, in closed cavities, and in the tissues surrounding the larynx and trachea, especially in young children.

In the vast majority of cases where peroxide is used and the condition seems aggravated, I am of opinion that the cause of the trouble lies in the employment of this agent.

ORGANOTHERAPY IN GYNECOLOGY.

By W. A. Newman Dorland, A.M., M.D.,
Instructor in Gynecology in the Philadelphia Polyclinic; Assistant Obstetrician to the Hospital of the University of Pennsylvania.

THYROID THERAPY IN GYNECOLOGY.

Of all the forms of organotherapy it will without doubt be safe to assert the marked preeminence of the extract of the thyroid gland. None of the glandular extracts have been more frequently used, and certainly none in a greater variety of pathologic conditions.

Whatever the physiologic action of the thyroid gland may be, it has long been recognized that its secretion—as also the ovarian—exerts a profound influence upon the body-metabolism, though of a directly opposite and conflicting nature. Its presence in a normal degree is essential to the maintenance of the physical equilibrium. Thus, through the investigations of the pathologists, we now know that in cretinism and its allied condition, myxedema, either this gland or its functional activity is absent; and in those cases of exophthalmic goitre in which extirpation of the gland was practiced a most alarming train of symptoms shortly developed, directly traceable to the removal from the system of the glandular influence. An excess in the normal secretion of the gland will likewise be followed by an annoying series of phenomena such as will be noted in hypertrophy of the gland or in Basedow's disease.

At once two propositions suggest themselves, namely, in cases of the first class—that is, where there is absent or deficient thyroid action—the administration of thyroid extract to supply the deficiency should be followed by an amelioration of the clinical phenomena; and in cases of the second class—that is, where there is excessive thyroid secretion—extirpation of a portion of the gland or the administration of some antagonistic extract should result favorably. These propositions were shortly tested clinically and found to be sound in theory. The administration of the various forms of thyroid extract in cases of altered or absent thyroid function is always followed by a marked improvement of the condition present, while partial thyroidectomy has frequently resulted most advantageously in the treatment of exophthalmic goitre.

To clinical experimentation based on the foregoing theory must be attributed a series of interesting and unexpected results in thyroid therapy, such as the value of its employment in gynecologic and obstetric conditions, and its undoubted usefulness in the reduction of obesity. The *rationale* of its employment in the latter condition has been suggested by Robert Hutchinson,* who explains its action by an increased combustion of the nitrogen-bearing substances in the body, especially of the fat, but of the muscles also to a lesser degree.

Jouin † was the first of the modern writers to call attention to the close relationship existing between the thyroid gland and the pelvic organs, although Catulle states that this relationship was well known to the ancients. In addition to the influence exerted by the uterus—especially at the time of the menopause, when the ovarian influence is dying out—upon the size of goitres, he was the first to observe a diminution in the size of a fibroid tumor under the administration of thyroid extract given to reduce obesity. He obtained a considerable amelioration, and at times even a cure, of uterine fibromata and their symptoms, and of metrorrhagia rebellious to all other conservative means. In cases of purely functional hemorrhage the results had been a complete and lasting cure; also in those of hemorrhage at the menopause or dependent on flexions, versions, and other displacements. In his hands the growth of fibrous tumors was always checked by it, and it often led to their retrogression. When it was employed early it cured them. In consideration of his results obtained in cases of this kind, as well as in the case of keloid and prostatic enlargement, he suggests that this method of therapy may be of value if applied to tumors of less advanced development, as, for example, sarcomata.

Hertoghe* has found that women deprived of the thyroid gland are subject to excessive menstrual discharges; as they grow older the menses last longer, and finally become almost a constant flow. He has also noticed that a hypertrophied thyroid is always accompanied by an early and copious mammary secretion. He has demonstrated by tests on milch cows and other animals that the secretion of milk is much increased by the ingestion of thyroid extract. From his experience he concludes that myxedematous hemorrhage is directly amenable to thyroid treatment, and also hemorrhages due to even an old endometritis or ovaritis. Cancerous hemorrhages cease after three or four days of thyroidization. The pain, swelling, and congestion also decrease to a noticeable extent. Thyroid treatment, he claims, is especially indicated in cases of frequent abortion, in which the menstrual flow is so excessive that it sweeps away the impregnated ovum. He cites an instance of a woman who was able to conceive and bear a child through the action of thyroidin after many years of sterility. Thyroidin, he finds, is also useful in cases of uterine myoma, prolapsus, or retroflexion with hemorrhage, and, in general, in all cases in which it is necessary to reduce the size, sensibility, or congestion of the uterus. On account of the peculiar action of thyroidin in stimulating the lacteal secretion, it should be administered if this secretion seems to be diminishing. It has also been found that in some phases of insanity, particularly those of the puerperal, adolescent, and climacteric periods, thyroid extract seems to have marked beneficial effects.

H. B. Stehman,† of Chicago, administered thyroid tablets thrice daily to six patients exhibiting various forms of menstrual and other disturbances, including menorrhagia, metrorrhagia, amenorrhea, ovarialgia, and extreme nervousness. Each tablet represented about one-sixth of a sheep's thyroid. In each instance a most notable improve-

* *British Medical Journal*, July 16, 1898.

† *Nouv. Arch. d'Obstet. et de Gynéc.*, 1895, No. 6; *La Gynéc.*, June, 1896.

* *Rev. Méd.*, Jan. 4, 1899.

† *American Gynecological and Obstetrical Journal* February, 1897.

ment was observed within the space of several weeks. It seems conclusive, therefore, that in these cases of pelvic congestion and sexual neurasthenia thyroid extract exerts a most remarkable and beneficial effect.

M. R. Latis* believes that the thyroid juice exerts an inhibitory or vasoconstrictor power upon the pelvic genital organs, which is proved by the gradual diminution and final cessation of the menstrual flow under the prolonged use of the remedy. Menorrhagia and hemorrhages due to endometritis, ovaritis, and even cancer are greatly benefited by it.

Robert Bell† quotes the experience of various surgeons and neurologists with reference to the thyroid gland and the genital organs. He states that Charcot, having seen women affected with exophthalmic goitre cured after pregnancy, did not fail to advise marriage, on therapeutic grounds, in the treatment of this disease. Bouilly, Tuffier, Guinard, Picqué, and Bloch, having had occasion to operate on patients affected with fibroma of the uterus or salpingo-oophoritis, in whom coexisted goitres, some of which had previously resisted all treatment, have seen the thyroid tumors disappear, or at least be considerably diminished in size, after the extirpation of the pelvic organs. Bell especially emphasizes the pathologic relationship of the thyroid body to the womb and believes that the vitality of the latter may depend to a large extent on the integrity of the thyroid function. This fact especially seems to be exemplified by the marked prevalence of metrorrhagia in myxedematous conditions. He believes also that the thyroid gland especially influences the health of the skin and mucous membranes and subjacent connective tissue.

In three cases of uterine fibroids Kleinwächter‡ found that thyroid extract exerted a favorable action in controlling the hemorrhage. In these cases the intermenstrual period was also prolonged or menstruation ceased entirely for a number of weeks. It was impossible to determine any diminution in the size of the tumors.

W. M. Polk§ states that during the past two years he has employed thyroid extract in fifteen cases of fibroid tumor of the uterus. In all but one he obtained good results. In four of the cases there occurred a distinct diminution in the size of the growth. He recommends the early and long administration of the extract in daily doses of 2½ grains.

J. Inglis Parsons* employed thyroid extract in five cases of fibromyoma of the uterus. Four of these were women of about the age of forty years, with old hard fibromata of many years' standing. No appreciable diminution in size followed after a three months' course. In the fifth case, a young woman twenty-five years of age, with a large, hard, nodular fibromyoma almost filling the pelvis and dipping down into Douglas's pouch, there occurred a distinct reduction in size. The symptoms of morning sickness and attacks of retention of urine entirely disappeared in three months' time.

Having observed in conjunction with the good results following the employment of thyroid extract in the treatment of sporadic cretinism, myxedema, and some cases of mental feebleness, more or less marked increase in the activity of the metabolic processes of the body, Stawell† was led to believe that the same agent might be reasonably expected to increase the metabolism of the mammary gland in suitable cases. Accordingly he employed thyroid tablets (presumably each representing one grain of dried gland), given from three to five times a day, in nine cases of nursing women, and in seven of these distinct increase in the quantity and apparent improvement in the quality of milk secreted followed.

R. v. Braun,‡ also reasoning from the same basis of profound alteration in the body-metabolism as a result of thyroid medication, has suggested the use of the drug in obstetrics in cases of contracted pelvis in order to prevent heavy development of the fetus. He cites an instance of a woman with a funnel-shaped pelvis, protruding ischiatic spines, and an exostosis at the right iliopubic eminence, who had been delivered by craniotomy several months previously. In her succeeding pregnancy from the beginning of the fifth month she was put on one tablet of thyroidin daily. During the first part of the remaining period of pregnancy she increased slightly in weight, and during the latter part she decreased. The fetus seemed to remain small and was allowed to go to term. She was then delivered of a 3200-gramme living

* *Dublin Journal of Medical Science*, Sept. 1, 1897.
† *Scottish Medical and Surgical Journal*, July, 1897.
‡ *Zeitsch. f. Geb. u. Gynäk.*, 1898, Bd. 37, H. 3.
§ *Medical News*, July 3, 1897.

* *Lancet*, July 23, 1896.
† *Intercolonial Medical Journal of Australasia*, April 20, 1897.
‡ *Cent. f. Gynäk.*, 1896, No. 27, p. 722.

child. The previous child weighed 4000 grammes at birth. The difference in weight of the two children may or may not have been due to the thyroidin.

Cheron* holds that thyroid extract is an excellent remedy in threatened abortion with hemorrhage, and is valuable in preventing the arrest of uterine involution after childbirth, and that it is potent against the premature return of the monthly periods. Moreover, it is a valuable galactagogue. In other words, it stimulates the mammary secretion while it lessens functional activity of the uterus. In his hands it has also proved valuable in the control of all forms of uterine hemorrhage, whether this be due to endometritis, tumor, or lesions of the adnexa.

The *contraindications* to the employment of the drug are: tuberculosis, since this seems to be stimulated rather than arrested, and grave heart disease, where it should be administered with the utmost care, and should be discontinued at once upon the first suggestion of tachycardia. The symptoms of thyroid intoxication are tachycardia, oppression, exophthalmus, glycosuria, albuminuria, and irritability. In certain cases the drug produces rapid emaciation, and sometimes gastric vertigo will be observed.

Four cases of uterine fibromata and two cases of hemorrhagic endometritis have been treated by me during the past winter by means of thyroid extract, with the following results:

CASE I.—A. E., colored, thirty-eight years of age, gave birth to her last child twenty-two years ago. She complained of great loss of flesh during the preceding six months, associated with severe radiating pain in the lower abdomen. Examination revealed a number of fibroid nodules on the anterior uterine wall. Five-grain tablets of thyroid extract were administered thrice daily, and in one week's time she reported a marked diminution in her pelvic pain.

CASE II.—S. K., colored, aged forty-seven years, single, complained of pain in the back and right ovarian region, and a persistent though slight leucorrhea. Her menses had never been regular, and were now profuse. Under the thyroid extract in two weeks she pronounced herself much better. The duration and quantity of the menstrual flow were greatly diminished.

CASE III.—M. M., colored, aged forty-eight years, had given birth to her last child thirty years before. She was suffering from the menopausal hot flashes, a constant leucorrhea, and pain in the back and left ovarian region. She had a small fibroid in the posterior uterine wall. On December 3, 1898, the thyroid medication was begun, and on the 16th she stated that she was improved and the pain in her back was gone. Four days later her menses began and lasted for four days, the shortest time for years. They had formerly been profuse and persisted for from seven to ten days. The leucorrhea was also much less in amount.

CASE IV.—L. R., colored, aged thirty-five years, single, complained of pain in the left ovarian region, frequency of micturition, and a mucopurulent leucorrhea. Her menses occurred at three-week intervals and lasted profusely for five days. Examination showed the presence of uterine fibroids with a small mass firmly fixed in the pelvis and fibroid in nature. On September 13, 1898, the thyroid tablets were administered. One week later her pain was less and she thought she was a little better, though there was no change in the micturition. At that time the tumors seemed to be undergoing some alteration in shape, and the mass in the pelvis had become freely movable. Six days later she stated that she knew she was better than when she first came for treatment; she had less pain in the back and side. On October 6 she was feeling better generally; her menses had returned on September 27 and lasted three days. They were profuse, but no more than usual. On November 1 the tumor was decidedly smaller and freely movable. Her bleeding was not so pronounced. At her last visit, on December 6, all of her symptoms were relieved.

CASE V.—K. G., white, aged twenty-seven, married three years, and sterile, came for the relief of sterility. Her menses had been profuse from puberty, lasting for five or six days, and always clotted. In August, 1898, rapid dilatation and curettage were performed in the hope of relieving the sterility. On March 3, 1899, she returned and stated that she had been flooding for seven weeks, and was suffering from severe left ovarian pain. Examination showed a slightly enlarged endometritic uterus. The thyroid extract was administered, and in forty-eight hours the bleeding ceased and has not returned at the time of writing. The pain also had disappeared and the patient was feeling well.

* *Rev. Médico-Chirurg. des Maladies des Femmes*, Nov. 25 and Dec. 25, 1896.

CASE VI.—E. E., a single girl, nineteen years of age, had been flooding for three weeks. The uterus was normal in size, though very sensitive. Thyroid extract in doses of 2½ grains three times daily controlled the bleeding in three days' time, and also materially lessened the amount of pain.

The following deductions would seem justifiable in the light of the foregoing reports:

1. The thyroid gland, in addition to its general effect upon the metabolism of the body, exerts an inhibitory action upon the pelvic genital organs, and upon the uterus in particular. This action seems to be especially marked upon the epithelial elements of the endometrium.

2. As a result of this inhibitory or vasoconstrictor action there follows a retardation of hemorrhages from the uterine mucosa.

3. This action is directly antagonistic to that exerted upon the uterus by the ovarian secretion.

4. In cases in which this conservative influence is deficient or absent, it may be restored by the ingestion of fresh thyroid gland or desiccations or extracts of that organ.

5. In gynecology, thyroid therapy is especially indicated in hemorrhagic affections of the uterus and in all forms of pelvic congestion, notably in uterine fibromata, hemorrhagic endometritis, menopausal hemorrhages, and chronic tubal disease.

6. The best results are to be expected in fibromata and pathologic conditions of recent development. The more chronic the case the more rebellious will it prove to thyroidization.

7. The thyroid influence is also found to cause an increase in the metabolism of the mammary gland, and the treatment is therefore indicated in all cases of insufficient lactation.

8. The drug may be administered in the form of the fresh gland substance; as a desiccated powder of the fresh gland; in tabloids of the desiccated gland; as the fresh juice; or in one of the various extracts of the gland, administered preferably in the form of tabloids. The same results may be obtained by direct transplantation of the thyroid gland from the sheep to the human subject. Because of the difficulty experienced in procuring the fresh gland and the repugnance which patients exhibit in consuming it, it is well to administer it in the dry form prepared by druggists—in tablets, pastilles, or capsules—in doses of 2½ to 5 grains three or four times daily. The average daily dose is 15 grains.

9. Owing to the tendency to thyroid intoxication it is well to discontinue the drug for a period of a week to ten days at regular intervals during the course of the treatment.

MAMMARY AND PAROTID GLANDS IN GYNECOLOGY.

Any consideration of the subject of organotherapy in gynecology would not be complete without reference to the results obtained from the administration of the desiccated powders of the parotid and mammary glands, or of the extracts of these glands, with which I have had no experience. These drugs have been employed by others with much satisfaction in the disorders and cachexiæ that seem to be consequent upon the presence of fibroid tumor of the uterus and certain chronic ovarian diseases. The credit of having brought the subject to the attention of the profession must be attributed to Dr. Robert Bell, of Glasgow, and Dr. John B. Shober, of Philadelphia.

As early as 1896 Bell* stated that it would appear that the parotid gland exerts a most powerful influence upon the ovaries, and that when disease exists in these organs it can be brought under subjection by the administration of the parotid glands of healthy young sheep, calves, and pigs. He further stated that it was beyond dispute that uterine fibromata, as well as hyperplasia and flaccidity of the uterus, can be most beneficially affected by the employment of the mammary glands of healthy animals. This, he said, is also true of certain diseases of the ovaries.

This form of treatment of ovarian, tubal, and uterine disease was suggested to him by the physiologic relationship which exists between these organs, as shown by mammary enlargement in pregnancy and metastasis from the parotid gland to the ovary in mumps. The effect of parotid gland upon a diseased ovary is so pronounced, especially if the uterine affection be simultaneously treated by ichthyol or other appropriate remedy, that it would be wrong, in his opinion, not to employ this remedy before resorting to operation.

In the *Scottish Medical and Surgical Journal* for July, 1897, Bell states that during the past two years he has obtained most favor-

**International Medical Jonrnal*, July, 1896, pp. 379–386; *British Gynecological Journal*, 1896–97, xii, pp. 157–170; *Lancet*, 1896, vol. i, p. 1496.

able results in over sixty cases of enlarged and painful ovaries which would certainly at one time have warranted oophorectomy. At the time of writing these women were not only perfectly well and free from pain, but also remained in possession of their ovaries. He also reported interesting cases of uterine fibromata, and uterine hemorrhages, that were either cured or remarkably benefited by the use of the elixirs of the parotid and mammary glands administered in drachm doses three times daily, or by the use of three five-grain palatinoids of the desiccated glands.

Bell reports that in cases of uterine hyperplasia there can be but little doubt that mammary gland administered in from five- to ten-grain doses three times a day has acted in a marvelously short time in promoting a speedy return to the normal condition. Menorrhagia and metrorrhagia, frequently accompanied by dysmenorrhea, have completely disappeared in the course of a few weeks, and when local treatment has simultaneously been adopted the recovery has been proportionately rapid.

John B. Shober* reports four cases of fibroid tumor of the uterus treated with mammary gland, and four cases of ovarian disease treated with parotid gland, with excellent results. He found that in the uterine cases — the women all being under the age of thirty-five years, and therefore far removed from the menopausal influence — and without the aid of any other form of treatment, there was a steady and progressive decrease in the size of the tumor, together with a steady improvement of the general health. Under the influence of the drug menorrhagia and metrorrhagia ceased, and the menstrual periods recurred at regular intervals. He believes that the mammary gland exerts a powerful influence upon the uterine muscle or connective tissue, acting in a manner somewhat similar to ergot, and quite distinct from thyroid extract, which influences especially the epithelial elements of the endometrium.

The mammary gland has never, in Shober's experience, given rise to any of the unpleasant and dangerous constitutional disturbances that often follow the prolonged use of thyroid extract; it acts rather as a tonic than as a depressant to the system. The effect of the drug in checking menorrhagia and metrorrhagia induced him to use it in hemorrhages not dependent upon the presence of fibroids, and in one case of subinvolution after labor. The results were very gratifying. He employs the desiccated powder of the sheep's mammary gland, each grain of which is equivalent to ten grains of the fresh gland. Two grains (twenty grains of the fresh gland) is made into a tablet together with three grains of excipient, and from three to four tablets are exhibited daily. In larger doses cramp-like uterine contractions are produced. Positive results may be expected in from six to eight weeks.

Shober has used parotid gland only in cases of ovaritis, in enlarged, congested, and exquisitely tender ovaries, and in cases of ovarian neuralgia and ovarian dysmenorrhea. The desiccated powder is used in the same dose and form as the mammary gland. The results he obtained by this course of treatment in selected cases were most gratifying.

American Journal of Obstetrics, vol. 38, No. 3, 1898; *Medical News*, Aug. 27, 1898; *American Journal of Obstetrics*, vol. 39, No. 2, 1899.

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*THE TREATMENT OF PNEUMONIA.**

By H. A. Hare, M.D.,
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There are two aphorisms which I am in the habit of emphasizing to my classes — one is that "when called to care for a patient through an attack of illness the physician should be a watchman all the time, and a therapeutist only when necessity arises." Surely there is no disease commonly met with in which this holds true more than it does in pneumonia. The second is that in all acute infectious diseases, and particularly so in croupous pneumonia, patients may be divided into three classes, namely, those who are so mildly ill that all they need is good care and little or no active treatment, cases on the contrary so malignant that nothing can be done which will produce cure, and a third class which, lying between these two types, is capable of cure, but only when the individual is aided by the most skilful treatment.

To attempt to discuss the treatment of pneumonia without recognizing these facts is futile, for no one who has met this disease can fail to recall cases which so far as human foresight can tell were doomed from the first. My belief in the existence of a class in which

* Part of a symposium upon Pneumonia before the Section of Practice of Medicine of the American Medical Association, at Columbus.

patients will get well if let alone is confirmed by the fact that I have frequently seen them get well when treated so badly that nothing except extraordinary recuperative power could have enabled them to withstand the disease plus the efforts of the well-meaning attendant.

With these brief remarks let me pass on to a consideration of the various methods which may be employed, first prefacing what I have to say by the remark that what I have already said is not because I am pessimistic in regard to therapy in pneumonia, but because the proper way to practice medicine is to recognize one's limitations rather than to be carried away by therapeutic optimism.

Dividing the disease into three stages, what are the means we can employ in the stage of onset? No sooner do I enter this field than I am met with the question of the so-called abortive treatment by the use of bleeding or circulatory sedatives such as aconite or veratrum viride. It is evident at once that at the best few patients can receive this treatment, because only a few have a sufficiently bounding circulation to justify its use, and very few are seen by the physician early enough in the malady to be benefited by it—that is, they come under observation after the acute hyperemia and congestion of onset has been followed by exudation.

Let us suppose, however, that the patient has a bounding pulse and is seen with symptoms which promise pneumonia—that is, a chill, a fever, pain in the chest, an expression of anxiety, oppression, and some cough—that his general state is sthenic, as it is apt to be in a strong, hearty man, and that auscultation reveals harsh breathing and slight impairment of resonance in one spot. Shall we resort to sedative measures, and if so, what ones?

In reply to this question my answer would be yes, employ sedatives actively and briefly. In other words, use a hot foot-bath, a hot compress over the chest where it is involved, or if the fever is high a cold compress, renewing the compress often enough to maintain its primary temperature. I would give veratrum viride in three-minim doses of the tincture every fifteen minutes till three doses were given, or the patient's relaxed pulse and slightly moist skin showed its effects, and some Dover's powder to allay painful cough and increase diaphoresis. I believe at this very early period that such treatment may do much to limit the disease, or at least mitigate its severity, and I believe that eventually we may find that such treatment instituted by our forefathers and designed, to use their expression, "to break forming diseases," did break them, and perhaps did so by producing a leucocytosis or phagocytosis or development of vital activity, which further studies will reveal. Beyond the first twelve hours this treatment should not be carried out, for if not effective by that time the disease has progressed too far for such measures to do good. From this point our effort must be to guide the patient through the storm.

Before proceeding to the treatment in the developed stage of the disease, the question of the use of venesection in the early stage may be dismissed. While venesection is often valuable, later on it seems an unnecessarily rigorous treatment at this early period, and deprives the patient of valuable blood should he be exhausted by the progress of the disease. The effect of the sedatives we have named is fleeting and easily overcome by stimulants, if it is so desired, whereas the effect of bleeding is prolonged and in one sense permanent.

When the consolidation has taken place it would seem that there are four different conditions to be looked after. First, the prevention of hyperpyrexia by cold sponging with friction, the use of an ice-bag over the heart and one to the head. These local applications are of great value, I am sure. The effect of the one on the precordium is to slow the heart and perhaps to protect it from the ill effects of the fever. Certainly its use is advantageous in the majority of cases. By the use of the ice-bag to the head pain is diminished, the mind is kept clear, and temperature is to some extent controlled.

I was about to pass by the use of antipyretic drugs, because in my opinion their employment is rarely if ever of service, and when it is useful, is so by reason of their power in allaying nervousness and not because they reduce fever. In cold we have all the antipyretic power that is needed, and these drugs impair the vascular tone of the patient and decrease the activity of his blood cells.

The second indication is to aid the circulation, *if it needs it.* If one is worried about a patient and is tempted to give stimulants, and before doing so he feels his own pulse, he will sometimes be surprised to find that his own is the weaker, or rather the patient's heart is overworking and really needs no

stimulation, but sedation by means of the ice-bag. If the pulse does really need stimulation, what drugs shall we turn to? For years we have looked upon digitalis as the standby, but I believe it often fails because of the well known fact that it loses much of its regulating power over the heart in the presence of high fever. A number of times I have failed to get good results from its use until the fever was reduced by hydrotherapy or cold was applied locally over the heart, when it at once acted most efficiently. The question of the dose is as important as the choice of the drug itself. Surely digitalis is given wrongly in many cases, for the doses are too large and too often repeated. The drug is so slow in its effects that in pressing cases ten to twenty minims of the tincture, or one or two minims of a physiologically tested and standardized normal liquid digitalis, should be given hypodermically, and there is no necessity of repeating it for many hours, say for eight or ten or even for twenty-four hours in some cases. By giving a good-sized dose when really needed and remembering that the effect of digitalis is very prolonged, we provide cardiac support for hours and avoid producing the shuttle-like pulse of overdoses of digitalis. The next important thing is to be sure of the quality of the digitalis, for much of it is so different in effect from what it should be that the effort of the physician must be nullified by a poor drug.

If the pulse be gaseous and relaxed, belladonna in five- to ten-minim doses every four or five hours may be useful, particularly if the skin is relaxed.

There is no drug so much employed in pneumonia as strychnine, and I think few are so often employed without good reason. Stimulants are of four classes: either they act by providing the system with material which in its combustion adds force to the body, as does alcohol, or they supply the parts called upon by their action with increased quantities of blood, as does digitalis; they liberate reserve force and enable the individual to put forth greater strength for a time, as does coca; and finally, they may act as whips or irritants to the nervous system, as does strychnine. Strychnine is therefore the only one of these which simply goads the system to increased endeavor and does not aid it simultaneously. By giving it freely when the patient seems to be sinking into the slough of death, we may rally him to a final effort to pull through, just as the crack of a whip will prevent a team from being "mired." But the skilful driver does not lash his horses all day long, and keep on lashing them after they are stalled. He uses it heroically at the crucial moment. Strychnine puts "a wire edge" on the nervous system, and if kept up causes more harm than good. For prolonged collapse or tendency thereto we may resort to coca wine. For combating a sudden collapse, strychnine is invaluable, particularly if it be combined with atropine.

It is needless to add that a fine old brandy will often agree very well with patients who have a feeble circulation, particularly if they are advanced in years.

The value of nitroglycerin in this disease seems to me to be in direct proportion to the degree of arterial tension. If this be high, this drug is of course invaluable; if it be low, it is manifestly useless, and should venous engorgement be great it is only a very indirect means of producing relief when a much better and direct means is venesection.

The value of oxygen gas is problematical. I always use it if respiration is difficult, and it nearly always seems to make the patient more comfortable, partly by the mental effect perhaps. I have never seen a patient who needed it badly who could take it himself in the sense of holding the tube to his mouth or to his nose. He has too much "luft-hunger" to aid himself, and it must be held for him.

With the treatment of the stage of resolution I shall not deal, as the discussion of this important topic has already been greatly prolonged.

I have not attempted to present an exhaustive bibliographical article, but one which is purely clinical; and in closing this symposium I cannot do better than reassert the fact already stated, that in no disease does the welfare of the patient depend more upon the skill, ability, bearing, and discretion of the physician than in this, and that nothing is more fallacious than that such cases can be treated by any routine method. The curse of therapeutics to-day is the fact that physicians do not think for themselves, but blindly follow some method seemingly valuable, so that the personal equation of the *individual* is lost in the sum total of the *disease*. No one plan can invariably be followed, for the doctor is not treating a disease but an individual afflicted by an infection which will vary in its effects according to his susceptibility and the virulence of the invading organism.

*THE EVOLUTION OF MODERN THERAPY.**

By Simon Baruch, M.D., New York.

Physician to Hood Wright Memorial (formerly Manhattan General) Hospital, and Consulting Physician to the Montefiore Home for Chronic Invalids.

(*Continued from page 377.*)

THE RISE OF MODERN THERAPY.

Being for the first time in the history of medicine clearly defined, the issue between the spoliative and constructive management of disease was now approaching decision. Many of us have witnessed this contest. Let me rapidly trace its fortunes and draw from it some deductions for our mutual benefit.

Foremost among the modern reformers in medicine stands Hufeland, who wrote a severe arraignment of the absurdities of homeopathy, in which he exhibits the most judicial fairness. He wrote: "Medicine is a science of experience; practice or continuous experiment on human beings, and the experiment is not yet concluded. If we have allowed the Bruonians, and if we still allow the contrastimulants, to apply opium and other heroic agents in large doses, why should not the homeopaths have permission to use them in infinitesimally small doses? It is Nature which cures disease; art only bears its share in that it understands how to guide and aid it. It is infinitely better not to disturb this work than to confuse it by irrational and forcible measures, mislead its movements."

Krukenberg, of Halle, approached the true therapeutic ideal and served almost more than any one else in his day to advance rational treatment. He insisted that the physician should be filled with a pious regard for Nature. The organism must be taken as a whole. "Our art is undoubtedly capable of decisive action, but let it not mistake the fact that in many cases its activity is quite superfluous, in others quite void or inadequate, in many injurious. Indeed, what virtues are not assigned to one and the same remedy! When we read such commendations we seem to be actually standing in the presence of the mountebank's booth." These are words freighted with the spirit of truth, which should be taken to heart by all enthusiasts in medication!

Schoenlein, who taught in the Berlin University, was also a cautious exponent of this doctrine. Being intent upon curing rather than philosophizing, he used drugs without professing absolute faith in them, and when necessary he did not hesitate to bleed and use milder antiphlogistics.

Although the masses were still bleeding and blistering and purging, earnest protests against these spoliative practices became more frequent and more authoritative. The new Vienna school was destined to play a leading rôle in this propaganda. Skoda's therapeutics were pithily stated by him as follows: "Air, water, cleanliness, and temperance are the best pills. And the drug store? Well, perhaps there is some good in that, too."

Dietl wrote (1845): "Of what use is it to ascertain valvular disease of the heart with the stethoscope, the formation of tubercles by the scalpel, the diminution of blood cells by the microscope, the increase of albumin in typhoid by the test-tube? We cannot cure these diseases, and typhoid is cured more surely if we leave it to the mild care of Nature. Nature alone can heal; this is the highest fundamental law of practical medicine, to which we will be forced to adhere even when a curative principle which is subordinate to it will be discovered. This chiefest fundamental law has been misunderstood in all times. The educated physician rarely has the courage to confess it to his patient. While the physician should not promise more than he can really fulfil, he should be active at the bedside, always ready to help. A rational treatment is therefore the highest aim of the physician, and the greatest benefit which suffering humanity expects of medicine. The principal thing is not to damage the patient—Nature produces and maintains; therefore it may also cure. Among all curative powers, the curative power of Nature must be acknowledged as the highest. What she cannot do we must endeavor to do; what she is capable of doing we need not do. Another able exponent of this school appeared in Wunderlich. He opposed therapeutic nihilism as hopeless, and justly taught that although in almost all forms of disease a number of cases recover without the physician and many other cases are lost in spite of all medical effort, there yet remains a considerable number of cases in which an intelligent intercession on the part of the physician is of most positive consequence. It is a very narrow conception of professional activity to suppose that its sole object is to restore health to the sick. Shortening of suffering, removal and mitigation of discom-

*Address before the Society of the Alumni of the Medical College of Virginia.

fort, protection against threatening dangers, are quite as serious duties."

The teachings of the Vienna and French schools exercised a favorable influence upon the leading physicians in England and America. In England we find them represented by the great Edinburgh clinician, Hughes Bennet, who wrote:* "Most diseases in vigorous constitutions, so far from having a tendency to destroy, have a marked tendency to get well of themselves, whilst instead of loss of blood, weakness, and prostration being remedies, they are sources of danger and the chief cause of a fatal result. I remember accompanying M. Louis many years ago in his visit to the Hôtel Dieu. Asking him what treatment he gave the numerous cases of severe erysipelas I saw there, he replied none at all, because they all get rapidly well of themselves in healthy constitutions. And I found it to be so. In the many cases of erysipelas in the Royal Infirmary I have never given the tincture of iron or anything else but good diet, with lotions of acetate of lead, flour or oil locally to alleviate irritation, and I have not had a fatal case. It is the book of Nature, which is open to all, that we ought to peruse and study; and why should we read it through the eyes of past ages, when the light of science was comparatively feeble and imperfect, instead of bringing all the advanced knowledge of the present time to elucidate her meaning."

In a most philosophical and logical manner Bennet attacks the prevalent practice of bleeding and mercurializing, insisting that "the real tests of successful practice are not to be sought in the alleviation of symptoms, but in the removal of disease, and that treatment is the best which, *cæteris paribus*, causes the fewest deaths and brings recovery in the shortest time. He states that a vigorous antiphlogistic treatment of pneumonia was followed by a mortality of one in three cases; the treatment by large doses of tartar emetic, according to Rasori, by one in five cases; moderate bleeding, according to Grisolle, resulted in a mortality of one in 6½ cases; the dietetic treatment combined with occasional small bleedings and emetics in severe cases (Skoda) gave one death in seven cases; and the purely dietetic treatment of Dietl one in thirteen cases—all being reports from large hospitals. The result of treatment directed to further the natural progress of the disease in the wards of the Royal Infirmary of Edinburgh under Bennet's care was one death in forty cases; there being no mortality in uncomplicated cases.

Bennet taught also that "the confident belief in mercury causing absorption of lymph is not only opposed to sound theory, but like the effect of bloodletting, it is not supported by experience. I cannot," says he, "resist the conclusion that the principles which led to an antiphlogistic practice in acute inflammations were erroneous, and are no longer in harmony with the existing state of pathology. Read the accounts of distinguished teachers and hospital practitioners as to the effects of bloodletting and compare them with what you have seen here with your own eyes of the successful treatment of inflammation. So powerful and so persistent have been the doctrines of the past that notwithstanding the facts which I made public in 1857 as to my results in treating pneumonia, and notwithstanding the fact that an antiphlogistic practice in this country is almost universally abandoned, every systematic work up to this date (1864) still recommends for that disease bloodletting, antimony, and calomel."

Here we have a true picture of the status of therapeutics in England in 1864.

These rational views percolated very slowly through the mass of the profession in America. Notwithstanding that Oliver Wendell Holmes had sent the shafts of irony into the ranks of the polypharmacists, and Bigelow had (1835) written his "Self-limitation of Diseases" and "Nature in Disease," antiphlogistic treatment continued in vogue until Austin Flint and his successor called a halt. How difficult this reformation was is evident from the severe criticisms made by the American editor of Reynolds' System of Medicine in 1879 upon the advanced therapeusis of the English author, which conclude as follows: "The intention of these remarks is not to antagonize but to qualify the summary conclusion which the language of Dr. Reynolds appears to convey, that venesection and kindred measures may with advantage be dismissed as obsolete. Of names not yet antiquated in favor of the occasional and moderate use of the lancet in the early stages of acute inflammatory disorders it may suffice to mention Aitken and B. W. Richardson of England, Niemeyer and Wunderlich in Germany, Jaccoud, Herard, and Count in France, S. D. Gross and Fordyce Barker in America."

The influence of the modern Viennese school upon therapeutics had now become

* Practice of Medicine, p. 295.

quite pronounced, at least among the leading physicians of the world. Especially in acute diseases was its trust in Nature effectively applied. When, however, Virchow proclaimed in 1854 (*Spec. Path. and Therap.*, vol. i) a deviation of temperature as the pathognomonic sign of fever, and showed that it was due to increased tissue change which in its turn is traceable to an inhibition of the heat-regulating centers by the fever-producing element, and this was supported by exact thermometric measurements, the leading clinicians of Germany sought in the reduction of this pathognomonic sign the all-important therapeutic indication. Bartels, Juergensen, Liebermeister, and others endeavored to prove that an abnormally high temperature was really the chief lethal factor in the infectious fevers, and as a logical corollary reduction of temperature was the chief aim in their treatment.* Digitalis, quinine, veratrin, cold baths, and later antipyrin and other coal-tar products were plied with might and main. At last scientific precision was in view; the thermometer demonstrated exactly the needs of the suffering system and its remedy. This doctrine spread rapidly, owing to speedy modes of communication, over the entire world. A new era seemed to dawn: antipyresis became the watchword, which has misled the medical profession as sadly as antiphlogosis had done in former years!

When our own Welch and others showed the untenability of the excessively lethal influence of high temperature, and when the uncertain quinine and salicylic acid as antithermics were replaced by the positive antipyrin, the eyes of calm bedside observers were opened to the fallacious theory and practice. They reasoned that if high temperature was really the lethal factor, the key to the solution of the treatment of acute diseases must be found in antipyrin! But, alas, though this agent reduced high temperature with positive certainty, its influence on the mortality statistics was either negative or actually unfavorable; the only advantage attained seemed to be that antipyrin permitted the patient to die with a lower temperature.

This is the first instance in the history of medicine where a medicinal agent pointed the way to more rational treatment of disease, and was afterwards abandoned. One who has passed through the various therapeutic phases of the latter third of this century in the treatment of fevers, and who, like myself, was taught cupping, blisters, mercurialization, nauseants (nitrous powders), veratrum, and passed on to aconite, digitalis, salicylic acid, alcohol, quinine, antipyrin, cold sponging, and baths, can realize the enormous change produced by the discovery of the coal-tar antipyretics, the avidity with with which they were taken up as a *magnum donum dei*, and the sad awakening when their vaunted curative action was disproved. Had this great discovery been made many centuries ago, when means of communication were meager, and methods of observation and investigation were imperfect, it would have required several centuries to demonstrate to physicians that they were pursuing an *ignis fatuus* when they sought in reduction of temperature the patient's salvation. Happily we live in a more favored time. Not alone have the damaging effects of medicinal antipyretics upon the excretion been clearly demonstrated, but the investigation upon the subject extended to clinical studies on the comparative effect of these antipyretics and the cold bath treatment. These were made chiefly by Ernst Brand and his follower, A. Vogl, who thus discovered that the beneficial effect of the cold bath was not due to reduction of temperature, inasmuch as its antithermic power was ludicrously inferior to antipyrin. They correctly concluded, too, that the beneficent results from cold bathing in typhoid fever were really due to a refreshing stimulating effect upon a depreciated nervous system. This view had long been taught by Winternitz and other hydrotherapeutists, but had not been heeded until recent years. Thus the failure of the much lauded coal-tar antipyretics had led to the enlightened and correct treatment of fever, chiefly by cold hydriatic procedures.

THE LESSON OF HISTORY.

Fellow alumni, I have sketched for you the lights and shadows of therapeutics from the pages of history. The colors are drawn from life, for I have permitted each exponent to speak in his own words. How does this rapidly drawn sketch strike the unbiased seeker after therapeutic truths? What lessons does it inculcate? How may a more useful therapy be evolved?

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* Wunderlich, a leader of nihilistic therapeutics, even abandoned it when the thermometric observations for which he is noted, in typhoid fever, established the danger of high temperature, and sought in infusion digitalis a panacea for this disease. Its reputation lasted three years, when one of his own pupils, Thomas, overthrew its dominion.

We are saddened by the fact that the history of our profession is darkened by somber shadows cast by each epoch. When we reflect that medicine began its career under the glorious ægis of a Hippocrates, whose insight into the true aims and possibilities of therapy has been demonstrated to have been almost inspired and prophetic, so that we must recognize the fact that even to-day our therapeutics approach perfection only in so far as they approach the ideals of our great Nestor, our hearts must be bowed with sorrow over the painful revelation that twenty centuries have passed away in argument and disputation over the treatment of disease, while suffering humanity lay prostrate, helpless victims of their errors —errors due to the neglect of the teachings of Hippocrates and to indifference to the warnings of a few brave and wise men who cried aloud in the anguish of sorrow and despair, urging a halt in the spoliation of human blood. If you accept without fear and without favor the testimony I have just cited before you, you cannot avoid this sad conclusion. Hippocrates himself with characteristic prevision foresaw it all, for he warned us that "disputes among doctors engender disrespect of the whole art among the people, so that they begin to doubt the existence of medical art. For in the treatment of acute diseases practitioners seem to disagree so much that what one declares as the best is by another thrown aside as the worst."

Viewing the medical profession in the light of its own history, we can hardly be surprised that it has been the butt of satire from the time when Plato said that no gentleman should devote himself to medicine as a calling, to Molière and to the present day, when, as in a recent newspaper discussion on Kipling's recovery from pneumonia, a writer was applauded who regarded pneumonia as less dangerous than the doctors who treat it.

While in the sanctity of our alma mater's home I unburthen the sad thoughts which the contemplation of the history of therapeutics inspires, I am not oblivious to the fact that other professions are not exempt from error. Let us not therefore condemn our predecessors, who often accomplished wonders under the most inauspicious conditions, and who were misguided by false lights, their pathway not blazoned by knowledge which has since their day and generation dawned upon us. Let us rather endeavor to draw from their deeds and writings lessons that may inure to the advantage of suffering humanity, which entrusts its best interests into our frail hands.

This is the burthen of my words to you today!

What are the chief errors which the history of therapeutics emphasizes?

1. The persistent effort to attack disease as an entity—an enemy which has invaded the human body and which must be driven from its stronghold. With few exceptions this idea, as I have shown, pervaded the theory and practice of all physicians so completely that even many enlightened practitioners of the present stagger under it. The disease is treated; it is attacked by the doctor with might and main. In acute cases phlogosis among the ancients, inflammation among the moderns, demanded venesection, purgatives, emetics, and revulsives. With few exceptions the ruling idea was to weaken the enemy, to destroy him. The result was disastrous. The doctor and the disease fought the valiant fight to a finish—but too often the patient also was finished! Being the battle-ground between the contending forces, he suffered from both. If he succumbed, the disease was charged with the victory; if he survived, the remedies of the doctor received the credit. How fallacious this idea is is clearly shown by history.

Bacteriology has discovered certain microorganisms, which appear to be present in certain diseases, and great industry is displayed in searching for remedies that may be antagonistic to these under the false idea that they constitute the disease. Let the search for specifics continue, but let us not permit ourselves to be misguided by the noble ambition and continue to fight disease with antiseptics and antimycotics which cannot reach the microorganisms that have entered every recess of the suffering body, and which would damage the latter, if they were capable of destroying the former.

Until other specifics are positively found, I would urge upon you *not to treat the disease, but the patient.*

2. Another error pointed out by medical history is the *neglect of the Hippocratic teachings regarding the vis medicatrix naturæ.* The sad consequences of this neglect run like a darkening shadow throughout the entire history of therapeutics. Now and then men like Erisistratus among the ancients and Hufeland and Audin-Rivière among the moderns attempted, as we have seen, to recall their colleagues from their false practices. The

regulative capacity of the human organism, which had been observed by them, had embedded itself in their minds, and they sought with all the earnestness of their natures to convey its salutary tendencies to ears which, alas, proved deaf to the most eloquent appeals. Not until the latter half of the present century do we find their warning lessons heeded. The Vienna school, led by Skoda and confirmed by the success of medicinally inert homeopathy, inaugurated a nihilistic practice, founded upon what they regarded as a scientific basis. The physician, it is true, now occupied a more dignified position; he no longer attacked disease. But he erred in the opposite, though not so destructive, direction of trusting too much to Nature. The therapeutic nihilist failed to realize that even in health he does not trust to Nature alone, but aids her by proper care in habits, removal of irritating elements, etc., and that in disease there is often even greater demand for aiding Nature in the execution of her beneficent designs. Moreover the patient, distressed by illness, was not content with the improved exactness of diagnosis nor with the more scientific attitude of his doctor. Such is suffering human nature. The sick man clamors to be cured; he not only wants to know the nature of his ailment and its probable outcome, but he demands to be placed in the best possible position to attain a pleasant and rapid recovery. The doctor cannot stand an idle spectator of Nature's process of cure; he feels himself impelled to act, to act promptly and wisely. This brings me to another error in the therapy of the past and of the present time.

3. *The treatment of symptoms.* The nihilistic treatment of disease introduced by Skoda and practiced by his followers did not satisfy the people, who demanded active treatment when sick. To meet this serious issue, the expectant method was evolved, which claimed for its object the treatment of disagreeable, painful, or threatening symptoms, the forestalling of dangerous enfeeblement, by timely and abundant nutrition and stimulation. Being a vast improvement upon spoliative methods, more satisfying, and really more effective than the nihilistic method, it rapidly obtained a large following in all parts of the world. It is to-day the accepted treatment of all acute and many chronic diseases. In the eagerness to satisfy the urgent demands of the patient or of the disease, the physician errs in the opposite direction when he attempts to meet every symptom. Hippocrates regarded bleeding as a valuable remedy because it relieved pain in the side, and many modern remedies have attained reputations because they relieved symptoms. Veratrum viride reduces the pulse to normal, digitalis increases its tension; antipyrin reduces temperature to normal; chloral and sulfonal produce sleep; morphine relieves pain. Besides these positive remedial agents there is a host of others, which have obtained more or less repute, through commercial propaganda or medical self-deception. Thus the materia medica has grown enormously, until to-day scarce a day passes without your receiving a circular or an agent vaunting this and that remedy for this and that symptom, and sustaining its claims by scientific and pseudo-scientific statements. The physician has learned sadly by experience the utter fallacy of these claims. He realizes that while the reduction of pulse and temperature by medicines may give temporary comfort, they are toxic agents which depreciate the vital strength. Veratrum produces collapse, morphine checks secretion, chloral enfeebles the heart, and the coal-tar antipyretics have been proven to interfere with excretion of urea. Nevertheless we need not hesitate to use the latter moderately in diseases of brief duration—to relieve muscular pains, to reduce high temperature, to produce diaphoresis. They are valuable remedies for the production of comfort in the diseases in which there is no toxemia, and even in the infectious fevers an occasional dose is comforting without being harmful.

Cold ablutions and baths have been ascertained to be less actively antithermic, but their effect being refreshing and antifebrile, they have become the favorite modern treatment for fevers.

Bloodletting was used by Hippocrates for subduing pains in the side in pneumonia and allied affections. His practice was followed for 1800 years ere its harmfulness was realized. Morphine has proven equally efficacious and less harmful; hot poultices and later cold compresses soothe the pain in most cases. A milder and less damaging treatment of this symptom has thus been evolved, and yet the patient's comfort is not neglected. The routine treatment of symptoms must, however, be constantly striven against; the patient's demand for relief must be met, but not when more harm may result from following our sympathy than good from our judgment. This is the lesson of history.

4. The attempt to elevate medicine to the

rank of a science is another error emphasized by history, which clearly demonstrates that the accumulation of data and the speculation upon theories do not make a science. Medicine cannot reach beyond the limit flatteringly assigned to it by Bacon, who called it "a conjectural branch of the natural sciences." Despite the enormous mass of positive data accumulated during the latter half of the present century—*i.e.*, during the most brilliant period of medicine—the latter still occupies the position of which Virchow wrote in his salutatory editorial of the *Archiv fuer Anatomie und Physiologie:* "Therapeutics must rise from its empirical standpoint; cultivated by practical physicians and clinicians and combined with pathological physiology, it must be elevated into *a science, which up to this time it is not.*" This was written fifty years ago, and it is true to-day! The reason is evident. Therapeutic problems involve so many uncertain and indefinite premises that deductions from them must be equally inexact and therefore unscientific. Nevertheless the search after positive data must continue, in order that a medical art may be constructed upon a scientific basis. Such a therapy is now in process of evolution in the modern development of the hygienic, dietetic, climatic, and hydriatic management of patients, as illustrated by typhoid fever among the acute and phthisis among the chronic maladies.

Having pointed out the therapeutic errors of the past and present, let me state as briefly as possible what I humbly conceive as the remedy. Therapeutics will not be perfected until we return to the simple teachings of Hippocrates, which have governed some of the best minds of our profession, even when their judgment was obscured by darkest ignorance of the processes of health and disease, which misled their striving after truth.

Standing in the brilliant light of latter-day physiology and pathology, aided by epoch-making discoveries in bacteriology and chemistry, and provided with instruments of precision, we are in a position to avoid the errors of the great Nestor, while striving to attain that deep insight into the processes of Nature which he taught to be the surest guide to the true art of healing.

A normal relation between the income and output of the human organism, an exact performance of work by each organ for the production of heat and labor in the maintenance of life—these represent a condition of health. They are governed by laws as inexorable as any law of Nature. The entrance of an etiological factor which disturbs these normal conditions does not suspend these laws, but directs their operation to the effort of readjusting the disturbed relations, by diminishing the work of one or more organs and increasing that of others—all with the single purpose of protecting the suffering organism against damage and death.

Ripened experience leads me to reiterate to-day what I said over a quarter of a century ago.* "As the healthy organism stands under the maternal protection of the laws of Nature, so does the disease. How else can we explain those remarkable processes, whereby health results from the chaotic and turbulent forces that violently assail the human economy?

"To these laws do we trace that *vis medicatrix* whose guidance we should ever seek, which arouses the whole organism to rebellion, when it is invaded by noxious agencies that endanger its integrity. *Disease is not the negative of health, for the same forces which are silently evolved in the normal and peaceful action of life are aroused from their quietude by unfriendly influences.* Order and law reign even where the human eye discerns only labyrinthine confusion and disorderly turmoil." Having held this view for the greater period of my professional career, I have derived more satisfaction and consolation from it than from all the books in my library. When difficulties assailed me and doubts threatened to obscure my judgment, I paraphrased Cromwell's warning, "Trust to God and keep your powder dry," into "Trust to Nature and be prepared to act."

The turbulent manifestations of disease are often but evidences of the antagonism between the action of the etiological factor and the activity of the curative factors in the organism. If the former prevail the patient succumbs or the disease becomes chronic; if the latter predominate the patient succumbs.

Rest, exercise, heat, cold, food, drink, light, air, baths, avoidance of unfavorable conditions—these are the means which unconsciously and automatically operate for the maintenance of healthy conditions. Their adaptation and utilization by the physician may restore the disturbed equilibrium in disease. Their regulation requires more judgment and skill than the prescription of medicines, because they are more flexible,

* Presidential address before the South Carolina Medical Association, 1873.

less easily applied, and less rapid in effect. They are unfortunately not so well taught and understood as is the materia medica. Do not understand me as despising the latter. Among the vast array of useless articles it contains some remediés—alas, but too few —that may be of great value, if judiciously applied, and without which I should feel myself shorn of considerable influence. It should be the chief aim, then, of the modern physician to treat the patient and not the disease, by girding the former with strength to withstand the latter, whether it be by physiological agents, as baths, by bacteriological products, as antitoxin, or medicinal articles, as quinine, always with an eye single to the safety of the patient.

The multiplication of remedies for each disease has done much to retard the advance of therapeutics. Simplicity is the first prerequisite to precision and success.

Let me cite briefly a practical illustration of the beneficent evolution of modern therapy, which I have drawn from that familiar disease, enterocolitis, the so-called summer diarrhea of infants. Time was when this very common disease was treated as an inflammation of the bowels, with leeches, poultices, mercurials, and other antiphlogistic and spoliative measures. Later a more conservative course was adopted—laxatives, chalk mixture, opiates, and astringents being the chief remedies.

Fellow alumni, you have doubtless, like myself, experienced much anxiety and sorrow in these cases, and you have, as I often have, dreaded to encounter them. How helpless were we to save these little sufferers—how impotent even to prolong their lives! They died from marasmus or from so-called spurious hydrocephalus. I say candidly there is no disease in which I felt the inadequacy of my art so keenly as in these trying cases, until Soxhlet, Escherich, and others demonstrated them to be chiefly traceable to the ingestion and multiplication of microorganisms present in the food, which produced pathological changes analogous to those resulting from septic microorganisms. Like the latter they produce heat, redness, and swelling, with all their concomitants and sequelæ, only modified by the location and functions of the parts involved. This clearly ascertained pathological fact has led not only to the prevention of the disease by proper sterilization of the food of infants, but it also afforded a key to its management. Thorough cleansing of the affected tract, best accomplished by lavage and enteroclysis, and in cases accompanied by much fever cool ablutions and baths to refresh the depreciated nervous system, have revolutionized the results in these cases. Whoever has, like myself, witnessed how these withered little creatures, with their stony gaze, parched lips, wizened faces, and panting chests, gradually sank into coma and death, while their vitality was being sapped by choleraic stools which neither astringent nor opiate could safely control, and who now sees these same sad cases quickly bloom into health and joyous child life under the modern management, must feel as grateful for living in this happy era as is the surgeon who has passed from the septic into the aseptic era of his calling.

A successful therapy has been evolved from scientific basic data. The dawn of a happier therapeutic era is upon us. Under earnest investigation of the laws of organic life, under incessant search for and recognition of errors, the evolution of therapy will go on to the end of time.

THE INDICATIONS, CONTRAINDICATIONS, AND DANGERS OF THYROID MEDICATION.

At a recent meeting of the Academy of Medicine of Paris, FRANCOIS FRANCK called attention to the dangers of thyroid medication, which he thought required us to be cautious in its use. He pointed out that coma, convulsions, and death may follow a massive injection of thyroid juice into an animal, and that Ewald, Langendorff, Gley, Haskover, and others have testified to these poisonous properties; while Lanz has shown that it causes excessive acceleration of the heart, and Charrin that it caused rapid emaciation. Dale-James has shown that it is possible for it to cause glycosuria. All these symptoms have been developed in the lower animals, but in man vertigo, tachycardia, pain, and great feebleness have been produced, and even death has been caused from cardiac collapse. Two such cases have been reported by Murray, one by Thomson, and one by Vermerhen. While these facts do not prevent us from using thyroid gland, Francois Franck thinks it should make us very cautious about its employment; or in other words, the fact is recognized that all remedies possessing much power cannot be abused.—*Revue de Thérapeutique Médico-Chirurgical*, Feb. 1, 1899.

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Leading Articles.

MALARIAL NEPHRITIS.

The medical profession is gradually learning from increasing experience that in the great majority of instances nephritis is a secondary process set up by some diathetic or infectious condition which may be considered its true primary cause.

The increasing knowledge which we have obtained concerning the influence of infectious diseases upon important organs, such as the liver and kidneys and the various lymphatic glands, has enabled us to see more clearly that in the presence of these diseases a number of conditions harmful to the kidney may arise. In the first place, they are all of them associated with more or less perversion of the circulation of blood and lymph; again, most of them are accompanied by more or less marked change in the heart and in the blood-vessels. Once more, the progress of the disease frequently results in congestion, and the toxic material produced directly or indirectly by infecting microorganisms naturally damages those organs most concerned in the destruction of these toxic materials and their elimination from the body.

In the study of the action of drugs it is the duty of the physician not only to regard with care the effect of the remedy upon the organs which need its influence, but also to study this effect upon those organs which receive it when it is first taken and those which eliminate it from the body after it has performed its function.

So, too, in the study of infectious processes, we should not only regard the notable lesions produced in certain organs for which certain microorganisms have a selective affinity, but we should also have a broad enough vision to recognize that the points of entry and exit may undergo changes worthy of our consideration and capable of producing grave alterations in the patient's condition.

We are accustomed to recognize the fact that scarlet fever, for example, is peculiarly prone to produce changes in the kidneys, that diphtheria may result in degeneration of the nervous mechanism controlling the heart, and that rheumatism seems to have a particular affinity for the cardiac valves. More recently it has been found that in a large number of instances typhoid fever manifests its primary effect upon the lungs and kidneys, and in some instances may leave the glands of Peyer or the solitary glands of the large intestine entirely untouched. Further, that the bacillus of Eberth may be found in vegetations upon the cardiac valves, in the kidney, and in various other portions of the body, where until recently it was not supposed to be present. Still more recently the belief of some of the older clinicians that malarial infection was capable of producing serious changes in the kidneys has been receiving confirmation through more accurate and scientific observations, and the writings of Osler and Thayer at the Johns Hopkins Hospital have done much towards illuminating this heretofore little understood subject. Aside from Dr. Thayer's well known contribution upon the relationship of malaria and nephritis, he has recently read before the New York Academy of Medicine still another paper, in which he expresses the view that malarial nephritis is very much more frequent than has usually been thought, and makes the interesting statement that the frequency of albuminuria in the estivo-autumnal fevers is almost as great as it is in diphtheria, reiterating also his earlier statement that in 768 cases of malarial fever admitted to the Johns Hopkins Hospital, albuminuria was present in 44.6 per cent and renal casts in 16.4 per cent, indicating there-

fore that the albuminuria was in all cases due to congestion or other conditions in the kidney. Further than this, Dr. Thayer believed that the renal changes appear to be due to the direct result of damage to the kidneys inflicted during the elimination of toxic substances.

His paper has also brought up the question of the value of quinine in malaria, particularly in relation to nephritis and hematuria. This question was discussed in the editorial pages of the *Journal of the American Medical Association* many months ago, and this discussion resulted in a fervid special article in the *Medical News*.

It is our wish at this time to express the belief, which has also already been expressed in a recent editorial upon this subject in the columns of the THERAPEUTIC GAZETTE, that no one can afford to urge the universal employment of quinine in all cases of malarial infection, whether they be hematuric or not, neither can he exclaim in favor of total abstinence from quinine in such cases. This fact is well illustrated by a case reported by Dr. Thayer, thus: A patient suffering from quartan infection suffered from a paroxysm, and under the administration of quinine the parasites disappeared from the blood for four days. At first there was a large percentage of albumin in the urine with granular, hyaline, and epithelial casts, but under the use of quinine the condition of the patient rapidly improved; although the edema disappeared the urine remained abnormal some months later, and the child died from uremic coma. The post-mortem revealed considerable interstitial nephritis.

Further, Dr. Thayer asserts that the study of his case indicates the greater frequency of nephritis in long-continued and ill-treated patients.

It is, then, our duty to remember, first, that nearly all infectious diseases exercise their malign influence upon more than one portion of the body, and in the treatment of these affections to use remedies with sufficient caution to gain all the benefit possible from their specific influence without causing at the same time damage in other parts, by reason of a collateral influence of the drug employed.

THE CONTRAINDICATIONS TO THE USE OF CERTAIN WELL KNOWN DRUGS.

In the treatment of disease it is required of the physician that he should exercise great care as to diagnosis and to the recognition of the symptoms presented which need to be relieved. It is of almost equal importance also that he should study the possible presence of conditions which will so modify the action of his remedies as to make them useless or so pervert their activities as to cause them to be harmful.

By far the most common factor to be met with in the latter respect is individual idiosyncrasy, a knowledge of which can only be obtained by careful questioning, and in some instances only by making a trial with this or that patient. Certain drugs produce effects which prevent their use in full doses in some persons with great constancy, while others seem to agree with the patient surprisingly well. While idiosyncrasy may prevent the use of any drug, certain drugs seem to be peculiarly apt to cause disagreeable manifestations even when used in great moderation. Among these quinine, iodide of potassium, opium, belladonna and its congeners, mercury, and pilocarpine occupy a prominent place.

It is not possible in this brief space to discuss all the symptoms arising from the use of quinine in the presence of idiosyncrasy. In some instances the ordinary effects of very full doses of the drug are produced by a very small quantity of it, or in other words the patient is peculiarly susceptible to the physiological action of the remedy. In still other instances these effects are so exaggerated as to hold only a slight resemblance to these ordinary symptoms, and in others the drug causes manifestations quite different in degree and kind from any physiological effect. Thus one patient may suffer from great fulness of the head with partial deafness after taking quinine, another will become entirely deaf, and a third will suffer from profuse skin lesions varying from a mild erythema to severe bullæ and even pustulation. In some cases, in place of or in association with deafness, there may be temporary amblyopia or blindness. Rarely, one meets with great irritability of the stomach which is produced by quinine, or equally rarely it causes an irritable state of the bladder. All these conditions arise from personal idiosyncrasy to the remedy.

We may next consider the pathological states that produce what may be called an artificial idiosyncrasy — that is to say, the states which render the action of the drug useless or harmful. These are middle-ear disease, which is usually marked and aggravated in both subjective and objective symp-

toms by the use of quinine, since this drug causes congestion and even hemorrhage into the tympanic cavity; epilepsy, which is usually made worse by this drug; gastritis, in which state the mucous membrane of the stomach becomes irritated by this remedy; meningitis, in which the membranes of the brain are still further congested by the action of quinine; and finally irritation of the genito-urinary tract in children, which is often exaggerated by the influence of the alkaloids of cinchona.

IRRIGATION OF THE BOWEL IN SUMMER DIARRHEA.

So valuable do we believe this method of treatment to be, particularly in the case of children suffering from the condition called cholera infantum, that we may be permitted to reiterate our views concerning it in this issue of the GAZETTE, although we are well aware that we have called attention to it editorially in previous years.

In obstinate cases, two individual things should be done for the relief of the child, namely, the use of irrigation of the large bowel by plain water, normal saline solution, or water containing a small amount of boracic acid; and second, and even more important, the use of milk should be stopped for a period of twenty-four or thirty-six hours, and it should be supplanted by the use of beef juice and water to allay thirst, to provide albuminoids, and yet at the same time to arrest the fermentation processes which are going on in the alimentary canal, and which are represented by the curds of milk which are found undigested in the stools which are passed.

Our attention is once more called to this matter by an article by Dr. Hubbard, of Boston, in the April number of the *Archives of Pediatrics*. The temperature of the solution which he employed varied from 89° to 90°. The child was placed in the lithotomy position; the catheter, free from air and full of the irrigating fluid, was gently inserted into the bowel as high as possible, and the syringe held about two feet above the baby.

Ordinarily about one quart of liquid may be used, and if there seems to be any tendency to its retention, an escape tube can be inserted alongside of the entrance tube. By this means the bowel is cleansed, the temperature is lowered, the blood is sent from the congested colon to the peripheral portions of the body, and great benefit results to the child, for often a peristaltic wave is set up which cleanses the bowel even above that portion of it which is reached by the injection.

Dr. Hubbard points out that seven out of ten babies which received this method of treatment had no rise of temperature the next morning, and of fifty-two other cases not so irrigated, fifty nine per cent had a temperature. So far as we know there are no contraindications to the employment of this method of treatment, provided a fountain syringe is held sufficiently low to produce a gentle flow of liquid into the bowel, and not high enough to produce too much hydrostatic pressure, which, if it is slightly excessive, may cause griping, and if it is very excessive may cause damage.

THE VALUE OF THE TRANSFUSION OF SALT SOLUTION IN THE TREATMENT OF PUERPERAL ECLAMPSIA.

The THERAPEUTIC GAZETTE has contained from time to time interesting editorial and progress items dealing with the value of hypodermoclysis by intravenous injections in various conditions of toxemia, and it has been pointed out that frequently life can be saved if the physician will resort to this simple, yet efficient, method of treatment.

Our attention is once more called to this matter by an article published by Dr. Allen in the *American Journal of Obstetrics* for May, 1899, in which he reports a series of cases which were treated in the manner mentioned. After detailing the various instances in which he employed it, he asks us to consider the advantages of this method as compared to others which are commonly employed, and then proceeds to discuss briefly the generally accepted theories in regard to the pathology of this condition.

In regard to the treatment by veratrum viride, he does not think that it is either rational or very valuable, and believes that in giving it in the full doses which are needed we are putting more poison, although of another kind, into the system of the patient. So, too, with chloroform, he does not think that it is generally an advisable remedy. Pilocarpine he naturally and justly condemns, but he believes that morphine is a useful adjuvant to chloroform.

In regard to venesection, it is evident that this method of treatment is applicable chiefly in those women who are full-blooded and extremely plethoric, and contraindicated in

those who are already anemic and lacking in blood.

Taking it all in all, Allen believes that the best treatment is as follows: In the pre-eclampsic stage, when the premonitory symptoms, consisting of epigastric pain, frontal headache, and disturbance of vision, have set in, we should thoroughly purge the bowels, stimulate the skin by warm baths, order a milk and water diet, and give nervous sedatives. At the same time the urine should be examined quantitatively to determine the amount of urea which the woman has eliminated, and if by chance this amount is scanty it should be increased by the use of diuretics, and we may add in addition by the employment of the hot pack.

When the eclampsia has already begun and delivery has been accomplished either by nature or by the aid of the physician, a hypodermic injection of morphine should be given at once, and this should be followed by forty grains of chloral and one drachm of bromide of potassium injected into the bowel. Owing to the convulsions, it is necessary to anesthetize the patient to accomplish this injection and to cause its retention, and for this purpose chloroform is by far the best anesthetic. It is absolutely necessary of course to bring on labor at once. Dr. Allen believes that a moderate amount of postpartum hemorrhage under these circumstances is advantageous, particularly if the woman has not already been bled, and also that about one and a half pints of salt solution should be injected under each mammary gland immediately after delivery, and in many cases on a number of consecutive days, in order to thoroughly wash the system of poisons. It is also advisable to keep the bowels moving actively.

The only advice which we have to add to that of Dr. Allen is that in carrying out the other important details we should not wait for delivery to be accomplished, but if possible administer the salt solution hypodermically at once, in order that it might rapidly produce its good effect. In some cases the influence of these injections is simply amazing.

THE TREATMENT OF ACUTE INTUSSUSCEPTION.

As to the frequency of intussusception as a cause of acute intestinal obstruction, medical literature, especially in modern times, abundantly attests. Thus, in a total of 1652 cases of intestinal obstruction, hernia excluded, collected by Leichtenstern and Bryant, 657, or approximately forty per cent, were due to intussusception. All authors are agreed that it is most frequent in the first year of life. Out of Leichtenstern's 593 cases, 131 occurred before the age of twelve months, and the great majority of these were in the fourth, fifth, and sixth months. After the fifth year intussusception becomes comparatively rare, till the fortieth or fiftieth year, when it again increases in frequency of occurrence.

The onset of the affection is sudden; the pain is violent and intermittent. Bloody mucus is passed from the bowel, often with much straining, and there is commonly felt a tumor on abdominal palpation, which varies in size and consistency from time to time, and has an erectile or vermiform motion. Vomiting, tympany, constitutional symptoms, and absence of fecal evacuations are common to this as to other forms of intestinal obstruction.

In infants, paroxysms of screaming and writhing, followed by intervals of repose varying from a few minutes to several hours, associated with blood-stained evacuations from the bowels, should always suggest intussusception. The palpable tumor is absent in about half the cases.

As to the treatment of acute intussusception, a clearer recognition of the admirable results to be obtained by prompt surgical intervention has in the last few years been so effective that the mortality of this at one time almost surely fatal disease is steadily dropping to about that of strangulated hernia.

Martin and Hare (Fiske Fund Prize Dissertation, No. 40, 1891), as the result of a statistical and experimental study, wrote as follows:

"The pathology of the disease teaches us that disinvagination becomes more difficult in direct proportion to the length of time which has elapsed since the onset of symptoms; hence every hour diminishes the chances of success. Whatever the age of the patient or the seat of the trouble, provided the case is not of such long standing that tight adhesions have probably made reduction impossible, or strangulation has produced a partial necrosis, ether should be administered to its full surgical extent, producing complete relaxation of the muscular system; by means of a fountain syringe *hot* (105° to 180°) .7 per cent saline solution should be *slowly* (four ounces to the minute) forced into the rectum under a pressure of not over two pounds to the inch (elevation

of the irrigating bag four feet), the liquid being retained by a shoulder upon the injection pipe, readily made by wrapping it with a narrow bandage; the abdomen should be thoroughly kneaded, the manipulations being so planned as to encourage disinvagination. This treatment should continue for thirty to forty minutes, the pressure being gradually increased by raising the bag till a pressure of not over eight pounds is produced, and may, if the tumor does not disappear, be combined with inversion and shaking.

"This trial at forced reduction must be *thorough* and *final;* there should be no idea that it is to be repeated with more care and attention to detail. If it fails, the surgeon must proceed to an abdominal section for the purpose of accomplishing disinvagination."

In the last two or three years the general feeling of the profession has been to limit the amount of pressure employed in injections to not more than two pounds.

Heaton (*British Medical Journal*, April 22, 1899), in recording four cases of operation, with three recoveries, points out that the general mortality of the disease under all forms of treatment up to within a few years ago was as high as seventy or even eighty per cent. In endeavoring to arrive at the true mortality of the various measures employed for the relief of the disease, he collected records of 104 cases of intussusception from hospital reports. Of these, thirty-eight recovered and sixty-six died, giving a mortality of over sixty-three per cent. The abdomen was opened in fifty-five cases out of the 104, generally after failure by injection or inflation to reduce the intussusception. Because of a lack of detail in the reports, eight of these cases are excluded. Of the remainder, twenty-three were reducible at operation; eight died, and fifteen recovered, giving a mortality of 34.8 per cent. Twenty-four cases were irreducible at operation; of these twenty-two died and two recovered, giving a mortality of 91.7 per cent.

Gibson's statistics, based on 239 cases, indicate a mortality of thirty-eight per cent for the reducible cases, and of eighty-two per cent for the irreducible ones when submitted to abdominal section. These latter statistics are, however, open to the objection that they are compiled from cases reported in the journals, and hence in the main successful ones.

It is noteworthy that the disease was extremely fatal in children under one year old, the cause of death being usually shock or exhaustion. Gibson's table apparently shows that the percentage of cases in which the intestine was irreducible varied directly with the number of days of illness.

The conditions for success in treating this affection are obviously prompt diagnosis and immediate surgical intervention. The true mortality of operative cases is certainly at the present day much higher than that given either by Gibson or by Heaton. That it will soon be lowered to figures much below those given is clear to those who have followed the trend of modern writing upon this subject.

THE DANGERS OF DELAY.

Upon this well-worn topic there has been so much written in recent times that further insistence upon the prompt application of the most efficient therapeutics of a given disease, whether this be operative or not in the case, would seem unnecessary; yet it is still the almost daily experience of every surgeon to see cases of incurable disease, or of irremediable deformity, which would have been within easy reach of complete cure but for the apparently inexplicable delay of the physicians to whose care these cases were first entrusted in applying the obvious treatment. Therefore, Robson's address upon this subject is by no means superfluous. He does not deal with the more obvious dangers of delay in surgery, such as waiting for the formation of pus before incising a felon, but considers groups of cases, in which his experience has shown him not only that delay in treatment is dangerous, but that serious delay even in these enlightened days is the rule rather than the exception. The grouping of tuberculous affections he first considers, and he holds that if complete rest were insisted on in the early stages of the joint cases, whether spine, hip, knee, elbow, or other joint, a complete and permanent recovery would occur in probably over ninety-five per cent of the cases. It is under such circumstances that the diagnosis of growing pain or rheumatism leads to a neglect of treatment until the time for complete restoration has long passed. In tuberculous peritonitis the curative effect of abdominal incision and drainage is so well attested, and the operation is one attended by such slight risk, that it should be advised before the period of extensive and irreparable degeneration has been reached. An incision only large enough to admit the finger, performed under cocaine

anesthesia, is all that is required, the procedure occupying only a few moments.

The importance of early recognition and removal of cancer has, perhaps, been insisted upon more than has early intervention in any other surgical disease The evidence as to the complete curability of cancer by an extensive operation performed in its earliest stages is conclusive. Yet still our hospitals are filled with patients who have long passed this favorable stage.

In regard to appendicitis, Robson holds that the appendix should be removed without delay, since before suppuration, perforation, or gangrene has occurred, or before firm adhesions have formed, the operation is practically unattended by risk; moreover, it can be accomplished through a small incision, with separation rather than division of the muscular fibers.

Cholelithiasis is another condition which too often receives an expectant treatment. Many of the cases in which an ultimate and necessary operation is extremely difficult and dangerous, because performed on patients in the last stages of illness, of deep jaundice, who suffer from infected cholangioitis, persistent vomiting, or exhaustion, would, if performed at an earlier stage, have been quite simple, with the chances of recovery at ninety-nine per cent. Among the dangers of delay in these cases, not the least is that of malignant disease. Robson states that he has operated on forty cases of cancer involving the gall-bladder, or some part of the biliary apparatus, and that he must have seen quite double this number of cases where he did not advise operation. The association of gall-stones with cancer is so common that the etiological relation of lithiasis can scarcely be doubted; this, then, is an added reason for early operation for gall-stones. Robson's views on this subject are expressed as follows:

1. Seeing that statistics from various countries and by many observers agree in showing the frequent association of gall-stones and primary cancer of the gall-bladder and liver, it is desirable that cases of cholelithiasis should be submitted to surgical treatment at an earlier stage than has hitherto been the custom.

2. In all cases of tumor of the gall-bladder, even if unaccompanied by symptoms, an operation should be advised, and the obstruction, usually a calculus, should be removed.

3. If these rules were followed, primary cancer of the gall-bladder and extension to the liver would probably be less frequent.

4. If early operation in cases of tumor of the gall-bladder were followed out, even if cancer had commenced, it could be caught in an incipient stage, when a cure by cholecystectomy, or even partial hepatectomy, might be reasonably hoped for.

5. An exploratory operation, even in a patient seriously ill, with a localized tumor in the gall-bladder region, is worth advocating, though malignant disease be feared, in the hope that the disease may be inflammatory, and so capable of relief.

6. If there are any secondary nodules in the liver, or if adjoining viscera are invaded, the operation had better be terminated as a simple exploratory one.

Robson expresses the hope that the time is not far distant when it will be more fully recognized that though cholelithiasis, so far as its course and early treatment are concerned, is distinctly a condition for medical treatment, it is both unjust to the patient and unfair to the surgeon to continue medical treatment until serious complications supervene, or the patient is almost, if not quite, past relief, before surgical treatment is advised.

In perforated gastric ulcer, at least five out of six patients can be saved by immediate operation. If a diagnosis cannot be made at once, it is much better to make a small incision in the middle line. If the gastric ulcer has perforated, an odorous gas will escape in opening the peritoneum. The opening need not be larger than just sufficient to admit the finger, and the whole exploration need not occupy more than a few minutes, it being done under cocaine, if there is objection on the patient's part to general anesthesia. In every case where perforation is in question the surgeon should be called in without delay, and he should come prepared to operate at once if there is perforation, or to explore within twelve hours if there is doubt.

The same general procedure should be adopted in perforating typhoid ulcer. Moreover, the perforation is usually in the neighborhood of the cæcum, and the seat of the disease can be reached at once by an incision there, thus avoiding the danger of a prolonged search and the exposure of the abdominal contents, so that a rapid operation can usually be done if performed early. One may reasonably hope to save about twenty-two per cent of cases of typhoid where intestinal perforation has occurred. Since from ten to twenty per cent of the fatalities in typhoid fever arise from perforation, it would seem wise to call in a surgeon the moment abdominal symp-

toms occur, especially if there be pain and tenderness in the right iliac region.

Dilatation of the stomach and stricture of the pylorus are both amenable to operation, and are customarily treated for years by drugs, the effect of which is at the best simply negative. Vomiting some little time after food, with thirst, and rapid emaciation, should lead to examination for dilated stomach. If, together with the stomach splash and other well known signs, there is noted peristalsis, the chances are greatly in favor of a narrowed pylorus, which in many cases is due to some simple or removable cause.

In regard to intestinal obstruction, Robson holds that every such case should at once be subjected to surgical consultation. The surgeon should be prepared to interfere as soon as the ordinary remedies have failed, and before the system has become poisoned by the fermenting contents of the gut above the seat of obstruction. Moreover, at an early stage the diagnosis of the nature and seat of obstruction can be more easily made out. Further illustrations as to the importance of prompt intervention are drawn from ovarian and uterine tumors.

It cannot be said that Robson has advanced any new arguments or more forceful illustrations of the danger of delay in surgical practice than have been presented hundreds of times before, yet his insistence upon this point has its value. The motives of delay are, however, rapidly becoming less strongly operative, and mainly through the admirable work done by such men as Robson. Undoubtedly the chief reason for delay in calling in the services of a surgeon is dependent upon the practitioner's mistrust of his ability to help. This mistrust dates back to the time when wounds went badly, when cancers invariably recurred, when openings of the peritoneum were almost invariably fatal, when every operation was attended by hemorrhage, and more or less marked shock. It is also accentuated by the fact that patients were too often confided to the surgeon's care only when their condition was hopeless. The mistrust is based on ignorance of the capacity of the modern trained surgeon.

Another reason for delay is ignorance of the first principles of diagnosis. This reason is becoming rapidly less operative with the advanced standard of medical education.

Still another reason for delay is a profound belief in the *vis medicatrix naturæ*, a belief fostered by the often extraordinary results following the cessation of an ill-judged system of therapeutics.

Sometimes the delay is due to the carelessness in the observation of symptoms on the part of the patient, or to a persistent concealment of such symptoms as may in the judgment of the patient be deemed by his professional adviser to require treatment at the hand of the surgeon. All these motives for delay are being steadily undermined by modern thorough medical education. It is but a few years since that the intelligent laity and doctors refrained from consulting the oculist in the majority of eye affections, because of the popular belief that these gentlemen did more harm than good. It is to be hoped that the distrust of the surgeon will pass as completely as has the lack of confidence in the ophthalmologist.

Reports on Therapeutic Progress

ON THE RELATION OF GOUT TO RHEUMATOID ARTHRITIS.

Dr. William Ewart, of London, in discussing this subject in the *Medical Press ana Circular* of March 8, 1899, begins his statements as to treatment by saying that he does not intend to enter fully into a description of the treatment of gout and rheumatoid arthritis, but only so far as it bears upon the relationship between the two diseases.

In the first place, it may be stated that the treatment which is most beneficial in pure gout is that which is most detrimental for the worst cases of that form which we may term "pure" rheumatoid arthritis, to which colchicum and alkalies would be almost poison, and low living the sure means of aggravation.

The relation between the two forms of treatment is thus one of direct opposition as regards their specializations. Yet there is a considerable basis common to both. Hygiene is essential to all classes of sufferers, but specially to those afflicted with chronic ailments; and internal hygiene is more particularly needed by all sufferers from joint trouble, whether this be gout, rheumatism, or rheumatoid arthritis—in addition to the essentials of a wholesome dietary.

Our difficulties begin with the management of the mixed forms. Where the indications are not absolutely clear our action is of necessity somewhat tentative. In most of the cases to which reference has been made there is, besides the rheumatoid basis, a suspicion

of the gouty element. Dr. Ewart believes that in many of these cases the best treatment is to treat the rheumatoid arthritis as thoroughly as this may be wisely done, and to be sparing with the more energetic remedies for gout. Our most important duty seems to be not to add in the slightest way to the depressing conditions under which the rheumatoid patient is suffering. A relatively lesser evil would be to temporarily increase his gout. But even this need not occur if our treatment be happily conceived.

There is one direction in which the treatment of both affections can be carried out with safety and benefit almost irrespective of their special characters—that is, the local measures of relief to the joint. We are now provided with additional means, and most effectual ones, of local treatment. It had been long noticed that the old-fashioned balnear treatment, which is often most serviceable in gout, led to very imperfect and often detrimental results in rheumatoid arthritis—that is, the treatment of the patient by prolonged immersion in a hot bath. The same debilitating effect would result in some of the mixed varieties of rheumatoid arthritis in spite of their gouty complication. The general balnear treatment had of late years been abandoned in all such cases for the more local measures of steaming, hot douching, and massage, applied more especially to the joints affected, and our chief success had hitherto been derived from this method. We are now provided with various means of treating the joint affected by dry heat up to a very high temperature. The careful application of these new methods graduated to each case will enable us to feel that a great deal is done for the joint, whilst no possible harm is suffered by the patient, whatever be the stage of his articular complaint.

Dr. Levison, in a most interesting article, has provided us with suggestions as to the diagnosis between rheumatoid arthritis and gout by the *x*-rays, and as to the treatment of the gouty joint by the electrolytic method. Thus electricity, which has been long known to be of considerable use, whether in the shape of the electric bath or of the constant current directly applied to the limb in cases of rheumatoid arthritis, has now found a yet more direct application in gout, since it addresses itself to the removal of the material which is the source of local irritation and pain.

Meanwhile the internal treatment of such cases may be carried out on lines conformable not only to some of the obvious indications, but also to theories which are in some respects divergent. The abundant use of water as the means of accelerating excretion of waste products and of all forms of toxins, and assiduous attention to the activity of the bowels, are equally desirable in gout and in rheumatoid arthritis, and fulfil the indications claimed by the neural as well as by the humoral theory.

In mixed cases occurring in mature age it may be best not to complicate the position by any vigorous tonic treatment, nor even by the iodide of iron, which has found so much favor since first advocated by Sir A. Garrod, and which is admirably suited to the uncomplicated form witnessed in children and young adults. There may nevertheless be room for the administration of arsenic in small doses and of sulphur, in addition to the purgatives. These have also been largely prescribed by the same authority before the more recent ideas concerning the septic origin of rheumatoid arthritis had been set forth. It may be said for arsenic that in addition to its antiseptic properties, it must approve itself to those who regard arthritis deformans as conditioned largely by a disordered nervous function.

Those are some of the general lines upon which doubtful cases may be treated safely, and with the promise of much benefit.

Reference has been made to the acute and painful forms of rheumatoid arthritis, frequently monarticular, in which an inherited gouty proclivity or an acquired tendency to gout may be a factor. As previously suggested, treatment comes to the aid of diagnosis in these cases so apt to puzzle us. Antirheumatic remedies and methods of treatment are absolutely harmful, and there is a positive intolerance—though this is not always thought of by those in charge, nor even often realized by the patients themselves—for the ordinary heat of the rheumatic bed. Let this influence be removed and they are immediately benefited. Dr. Ewart regards this variety of complaint, long ago described as an affection *sui generis* and successfully treated by Dr. Fuller, as a special form of rheumatoid arthritis, of a vasomotor type; and in treating it he is impressed with the necessity of addressing the treatment to the vasomotor system. The best way to do this is the application of heat or cold. Whilst we had remained restricted to the former methods of

thermal treatment, treatment by heat had often failed, and the application of cold had been found to be the only successful method in some cases, after trying in vain the use of hot spongings or even of the hot-air bath. Now that different methods are available it is conceivable that cases of this kind, although refractory to ordinary heat, may be relieved by the heat cure and derive great advantage from the high temperatures generated by electricity and by other means, as they certainly do from cold applied locally.

As regards the general and medicinal treatment of this variety, it must vary with the individual characteristics of the patient, but in the average case most advantage would be gained by our disregarding indications derived from a mistaken diagnosis of rheumatism, and by our not being deterred by the gouty family history or personal antecedents from endeavoring to raise the general strength of the patient. This practical view would also meet the indications suggested by any toxic theory which might be entertained by some in preference to the neural vasomotor theory.

The antiseptic treatment by the internal administration of creosotes, phenols, and naphthols, recommended by Bannatyne, and the local germicidal intra-articular treatment by means of iodoform, carbolic acid, and other germicides practiced by Max Schüller, are too important to be passed altogether unnoticed, but they are specially intended for the infective form of the disease, and they have not, so far as the author knows, a direct bearing upon the subject of this discussion.

Lastly, we come to the question of diet and of alcohol, the answer to which is foreshadowed in Dr. Ewart's preceding remarks. The rheumatoid patient needs, above all, to be fed, and wine suits him well; but if he should turn gouty we cannot disregard his gout. It is preeminently in this connection that the practical purpose of this discussion is revealed. How to diet the patient and whether or not to allow him alcoholic stimulation are points not to be safely decided except on the strength of an accurate diagnosis, not only of the general character of the case, but of its special phase. In doubtful cases there is probably more rheumatoid arthritis about the patient than gout, and Dr. Ewart is in favor of the policy which he has indicated in his remarks on treatment, of running the risk of a slight gouty exacerbation rather than of incurring the reproach of intensifying the depression and debility inseparable from the rheumatoid state. The gouty element, if present, may however restrict the choice of stimulants to those more suited to gout; whereas in uncomplicated rheumatoid arthritis, particularly that of the young, the prevailing anemia calls for a supply of the red wines. In both cases the delicacy of the digestion has always to be borne in mind, and it is equally essential that the diet should be easily digestible, and that it should be sufficiently varied and nutritious.

TREATMENT IN THE EARLY STAGES OF ACUTE APPENDICITIS BY SALINE APERIENTS.

The treatment Dr. MAYLARD proposes, in the *Glasgow Medical Journal* for March, 1899, in the early stages of acute appendicitis is as follows:

1. Give copious warm soap and water enemata.
2. Administer hourly until the bowels move freely small teaspoonfuls of sulphate of magnesium dissolved in about two wineglassfuls of warm water.
3. Apply hot linseed poultices to the right iliac fossa.
4. Feed on whey, chicken tea, meat jellies, etc.

THE INDICATIONS FOR CHLOROFORM DURING LABOR.

Under this title BACON, of St. Paul, writes a paper in the *Northwestern Lancet* of March 15, 1899. He points out that the sanguine diathesis gives us patients who are usually large and florid, with muscles that are well developed. Arterial tension is high, and as age advances the heart has a tendency to hypertrophy and to fatty degeneration, and the muscles become inelastic. Young patients of this diathesis bear chloroform well, but it should be used less freely as age advances, unless hypertrophy of the heart and weakened blood-vessels are present.

Strumous patients are defective in nutrition; the bones are frequently irregular; they have little or no adipose tissue and are irritable, with weak muscles. A few drops of chloroform at infrequent intervals and during a pain will give these patients much comfort. Fortunately the fetus is usually small, and the few drops necessary to relieve irritability will not increase the duration of labor.

Dark, despondent women of the bilious diathesis are slender; their tissues are dry

and inelastic; they are inclined to be whining, with little fortitude in pain. In these cases begin chloroform early in small regular amounts, and the patient will soon become courageous and patient and will eagerly follow instructions and assist the uterine contractions. These patients will insist that chloroform increases the strength of their pains, and the change in their demeanor will seem to corroborate their statement. The bilious frequently merges into the sanguine, and we have large, steady, persistent people with marked tendency during labor to rigid os and perineum. When the bilious merges into the nervous diathesis, we find active women but great sufferers. We find many of our chronic invalids of this type. Both of these classes are benefited by the use of chloroform from the early stages of labor until the end; even small regular amounts, sufficient to relax spasmodic muscular action and relieve keen pain.

The bilious and lymphatic combination presents to us a helpless creature whose natural weakness is intensified by despondency. She has heard that chloroform makes her labor easy, and she insists upon having it, and having it early and in large quantities. To refuse is to add panic to fright, but the difficulty is readily overcome by liberal inhalations of alcohol. Chloroform should not be administered in normal labors with this type.

The sanguine diathesis is frequently blended with the nervous and bears chloroform well. When the strumous is blended with the nervous, chloroform can be used freely. When the strumous is merged into the sanguine chloroform can be exhibited freely, but should be watched more closely than in the nervous diathesis.

When valvular lesions of the heart are present, the increase in the volume of blood and the increased engorgement of the vessels that occur during the uterine contractions become a source of danger. Without chloroform the heart's action becomes labored and irregular and the patient's distress is great, but immediately upon its exhibition the vasomotor dilatation allows the patient to bleed into her venous system and the vigor of the uterine contractions is lessened. The excess of work thrown upon the heart is removed, and the relief to the patient is so evident that Bacon would as soon think of approaching one of these cases without aseptic precautions as without chloroform.

When disease of the blood-vessels is present chloroform should be administered to relieve straining and lessen the danger of rupture.

Albuminuria is benefited even though eclampsia is not present, when the albumin is due to reflex irritation or increased arterial tension, and under its influence certain French and German investigators claim that the amount of albumin excreted is diminished and sometimes disappears.

When eclampsia occurs before delivery the convulsions are controlled, the exhaustion and the danger to the heart and blood-vessels are averted, and the uterine spasms are checked, allowing normal contractions to occur.

In certain cases the pain is of such a character that labor is delayed, and chloroform at such times hastens delivery and prevents some dangers.

In primiparæ when pains are severe and the os dilates slowly, the patient becomes worried and weary and nervous irritability and exhaustion follow.

It sometimes happens that intense suffering inhibits proper contractions, and inefficient pains result.

In abnormal uterine contractions pain sometimes becomes pathological in intensity, as seen frequently in hysterical women.

During the second stage, particularly if it is long continued, the vulva becomes swollen and irritable, and if the pains are severe the patient frequently cannot be induced to strain.

In all of these cases chloroform given to the obstetric degree takes the edge off from the pains and gives the patient courage; at the same time the intervals between pains are lengthened and the patient obtains rest. Chloroform should be used to control tetanus of the uterus, spasms of the cervix, and to relax a rigid perineum if due to reflex irritation, but it should be borne in mind that a rigid perineum is frequently but an indication of weakened uterine action. In precipitate labor, if the rigid condition of any portion of the birth canal makes tearing probable, chloroform should be administered in quantities to lessen uterine force as well as to relieve pain.

Forceps are applied usually because of uterine inertia, and chloroform should be used to relieve sensibility and allay reflexes, but the tendency to flood should be borne in mind and its use discontinued before delivery.

During version, anesthesia is required for all sensitive patients. Without it the uterine

muscles become tense as the hand pushes in, and sometimes the contraction becomes continuous; besides, the pain is intense and struggling frequently interferes with the necessary manipulation. It should be discontinued as soon as turning is accomplished.

It should be omitted only when the abdominal and uterine muscles are insensitive and when the cervix is dilated and flabby or when contraindicated by disease. Chloroform is useful in all cases where it is necessary to pass the hand into the uterus to change presentations.

In foot and breech presentations it is useful in unruly patients, but in the main the benefit as an anesthetic is doubtful, for the cooperation of the patient and the uterine pains are necessary assistants.

In all surgical procedures during labor chloroform should be used upon the same indications which govern its use in other cases.

ANTISTREPTOCOCCIC SERUM IN THE TREATMENT OF PUERPERAL SEPTICEMIA, SEPTIC CELLULITIS, POSTOPERATIVE SEPSIS, AND ERYSIPELAS.

ROBINSON writes in the *Virginia Medical Semi-Monthly* of March 10, 1899, of his experience with this serum. After detailing his cases he says it will be noted that with the exception of three cases of the puerperal class, the attacks came on within three days following delivery. Such a history points strongly to the streptococcus as the cause of the septicemia. When there is profuse discharge we may suspect sapremia; still there is often a mixed infection, and we need not hesitate to use the antistreptococcic serum for both the possible benefit and the diagnostic advantage. The results in the puerperal cases are strongly suggestive.

The postoperative cases were no less striking in their response to the serum. The septic cellulitis cases and the gunshot wound demonstrated the value sufficiently positively to encourage further trial.

The erysipelas cases were too positive to be questioned. Dr. Robinson says he grants, from a strict scientific standpoint, that his report may have little significance to microscopic investigators, but to the great body of busy practitioners whose souls are deeply stirred by these perplexing cases, and who have no microscopical advantages or conveniences, the antistreptococcic serum will be most gladly welcomed.

Touching the doubt of all things, without microscopic proof, he says it appears criminal to bar the profession from the use of a remedy pregnant with such possibilities of relief.

In all save his first case Parke, Davis & Co.'s serum was used.

REMARKS ON THE DESIRABILITY OF A MORE CAREFUL STUDY AND EXTENDED USE OF HYDROTHERAPEUTICS.

Dr. PUTNAM, the well known neurologist of Boston, asks the following question in the *Boston Medical and Surgical Journal* of March 9, 1899: Is a "shock," from a sudden application of cold water, useful or objectionable? The latter view is often maintained, both by patients and physicians, but the former is correct, provided only that the shock is proportioned to the habits and the capacity for reaction. Patients are apt to dislike the "shock" of cold water, and if they are feeble or nervous it may, if severe, frighten or fatigue them. For this reason, when an unfamiliar method is first used the application should be as warm as 85° to 90°. This will feel cold if the skin has previously been warmed to 100° or higher. On the other hand, the common practice of letting cold water run gradually into a previously hot bath, so that the temperature is slowly lowered and "shock" avoided, is an objectionable one, and much less likely to be followed by a good reaction than a more sudden change, especially if the latter is associated with smart friction, as in the case of the drip-sheet or forcible cold affusion given by another person. It is not easy for a patient to make a thoroughly satisfactory cold application unaided except by an immersion bath, since otherwise, at the best, only half the body can be bathed and rubbed at one time. The immersion bath at low enough temperatures to be thoroughly stimulating is very refreshing to vigorous persons who are thoroughly habituated to it, but less safe for feeble persons. If the latter must take their bath unaided, rubbing with a large, dripping-wet towel is perhaps the best method.

Hot baths, at temperatures considerably above that of the body, have primary effects similar to those exerted by cold baths, but secondary reactions are liable to occur, leaving the skin pale and cool and the arteries

tone low, and, moreover, the skin is for a time after them abnormally sensitive to slight cold. It is risky, on these accounts, to take hot baths at bedtime, because the primary heat of the skin leads the patient to underestimate the amount of clothing which will be required later, and he may wake to find himself chilled.

These dangers are diminished if sufficient time is taken to allow of complete cooling before going to bed, or if the hot bath is followed by a dashing or rubbing with cold water. Of course there are cases, however, where the sedative action of a prolonged warm bath is very useful. Massage given during warm baths is useful for elderly people with arteriosclerosis (Jacobi).

It is a mistake to suppose that shivering is necessarily a sign that the body is becoming chilled to an objectionable degree. Shivering frequently occurs when one rises from bed on a cold morning, and yet wholly disappears, together with the sense of coldness that accompanies it, after a plunge into very cold water. Even blueness of the finger-tips is not necessarily a danger sign, since it is usually due to local changes in the cutaneous circulation and not to weakness of the heart.

Children do not require as low temperature as adults to develop such a degree of reaction as can be expected from them, and do not stand severe cold as well.

Where the reaction on the part of the vasomotor system is to be limited to a small portion of the body, lower temperatures and more prolonged application can be used than where the whole surface of the body is to be exposed.

Where drip-sheets, or sheet-baths, or wet packs are to be used, coarse linen sheets or damask table-cloths are better than cotton sheets, as being more absorbent and affording better surfaces for friction.

The mechanical impact of a stream of water delivered under high pressure in the form of a douche adds greatly to the stimulant effect, and insures a better reaction. Nevertheless, a feeble patient has to be accustomed gradually to high pressures as to low temperatures, and at first relatively short applications are necessary. In a well-appointed institution greater and readier variability, and thus better results, can be obtained than in a private house.

Especial caution is necessary in applying baths tending to produce much reaction, to elderly persons, or to any person with brittle arteries or with disease of the heart.

In the discussion that followed Dr. COGGESHALL said it had always struck him, in watching the advantage which prominent men, of the class who are our consulting physicians, have over the general practitioner, that it was quite as much in the wider range of their resources in therapeutics as in their superior ability in diagnosis, and it seemed to him that one of the greatest difficulties that the general practitioner labors under is that he has very few medical resources beyond drugs, and that he is apparently unconscious—almost unconscious—of the wide applicability of other means of treatment. Drugs and surgical operations are the widest range of his therapeutic imagination, and if we are to get the best results with a great many forms of chronic diseases especially, and he thought also with a great many acute diseases, it seemed to him that we ought to pay more attention to other means of treatment, and among those in his short experience he had seen none he should attach more importance to than hydropathy. It is commonly thought of as a process of giving people baths, and that there is a difference of temperature. We may give a hot bath or a cold bath; but any one who has studied the work of Baruch in New York or Winternitz in Vienna, and many other eminent men in Germany and other parts of Europe, must realize that hydropathy is a much more complicated subject than the mere question of giving a bath and giving a bath hot or cold. If physicians did realize the amount of benefit that accrues in a wide variety of cases from water treatment in various forms, they would take more interest in it. The objections to it with the general practitioner are of course obvious and serious. It would take a great deal of time to study the details of treatment. It would be like having to learn a whole materia medica over again almost, and it requires more time to plan the treatment for an individual case than to write the most carefully considered prescription; and yet he said he could not help believing, from what he saw abroad, and what little opportunities he has had for personal experience since he has been in practice, that the results would repay the additional time and trouble which the careful carrying out of such treatment would require. Then there is the expense, which is, for the finer details of such treatment, out of the question for the vast majority of private patients. He had been able in the case of one private patient to get him to put into the house some of the appliances re-

quired for that case, and he said the patient has always felt since that, although he expended some hundreds of dollars on them, he got better money's worth out of it than out of his physician's prescriptions. That, however, would be a very exceptional case.

The only way in which we can carry this treatment out successfully would be to get an institution which would undertake to provide all the apparatus required for the complete system of hydropathy and carry out the treatment of cases under the direction of physicians, perhaps with the assistance of consultation advice as to the treatment in the case from some one who had had a large experience in that kind of therapeutics.

Dr. Coggeshall said another reason why an institution would be an important, in fact an absolute, necessity to any general use of it would be that it requires skilled assistants to apply the treatment. He had found some very disappointing results in attempting to carry it out in private families, even with the simple forms of baths and giving the most minute directions he could to members of the family. A nurse must superintend and apply the treatment throughout; and he does not think it is very easy for the patients to do it for themselves, even after they have been under the treatment some time, because one constantly wants to alter the details of the treatment in the same case.

The diseases in which Coggeshall has seen the treatment effect most good were among nervous diseases—hysteria and neurasthenia, in both of which the results appear to be excellent. Among the commoner diseases that in general practice he should think it was most valuable in, for one he mentioned many cases of organic diseases of the heart. He began to use this treatment for diseases of the heart about three years ago, and tried it on the first case with a good deal of hesitation. Now, with the great majority of cases of valvular disease of the heart he sees, he uses it with a great deal of confidence, and generally the results have justified that confidence. He is sure that every case of simple dilatation of the heart is benefited by it, and cases at least of mitral disease have seemed to him, in the comparatively few he has had an opportunity to try it in, to be excellently adapted to it. In the case of the Schott treatment, of course, it includes exercise. Dr. Coggeshall had tried the exercise without the baths in a number of cases, and although he got benefit, he got much less benefit than in the cases in private practice that could afford to have a nurse come to the house and give them the baths as well as the exercise; and in one case, in which he tried the baths alone, he thought he got as good results as in the baths and exercises combined.

In acute diseases the use of baths in typhoid, of course, is familiar to all of us. He thought there was a wide divergence of opinion among physicians who have tried them, as to the benefit, and it seemed to him that a good deal of that divergence was due to the fact that the details of the treatment had not been carefully carried out. He said he remembers visiting a large hospital some years ago in which the visiting physician told him they were using the Brand treatment for typhoid fever, and he said it in rather a skeptical way, which implied that he did not get many results from it and did not expect to. Dr. Coggeshall found he was giving the baths by sponging the patients in bed. That is not Brand's treatment. It is an illustration of the laxness as to the details with which experiments in such treatment are often made. He did not get very good results, and it is thought the treatment was abandoned as the result of experiments which consisted entirely of sponging the patients with cold water. Dr. Coggeshall said he has had very little personal experience in the treatment of typhoid fever with it, but he has had experience in the treatment of two conditions occurring in acute disease which gave him a great deal of confidence in the value of simple cold bathing in such cases, and that is in the matter of convulsions occurring in children in connection with any severe or light disease, and in the treatment of delirium. The effect in delirium in pneumonia or typhoid fever has been, as he has seen it, certainly more marked than any other treatment he has ever seen attempted for it; and in convulsions of children, even in hopeless diseases like tubercular cerebrospinal meningitis, certainly the relief to the symptoms and the greater quieting, the rest, the improved action of the heart which he got from suppressing the convulsions with the cold bath, were well worth the trouble of giving it. Of course, in such cases as this, and in a case of delirium occurring in pneumonia, he found the greatest difficulty in persuading the family that the patient would not be killed by immersing him in water as cold as he wished to put him into. He had tried it in a number of cases, and had not seen any bad results.

Dr. Coggeshall supposed it was fair to class under the water treatment the application of ice-bags to the chest in pneumonia and bronchitis. That is another form of treatment he had used repeatedly, and always, it seemed to him, with some or a good deal of benefit; but if we are to get satisfactory results in such cases as those spoken of, whether in the chronic forms of diseases like hysteria and neurasthenia, or in the treatment of delirium and convulsions occurring in acute diseases, we must attend to the minutiæ of the treatment, and until we do so he thought it was not fair to draw inferences from the results. Dr. Putnam mentioned some examples of fallacies involved in reasoning about the treatment, and Dr. Coggeshall wished to mention one or two others.

He believed Dr. Putnam mentioned the fact that the temperature was not much lowered by short cold baths, and Baruch, he thought, was the first who called attention to the fact that although the temperature as taken in the mouth was lower the temperature in the rectum was not materially affected. Some physicians, in thinking of the application of cold bathing to typhoid fever, have apparently assumed that the principal value of it was as an antipyretic, and that it had the same use as acetanilid or phenacetine, except that it might be less depressing. Dr. Coggeshall said he could not believe that that was its value; in fact, as he had tried it, in cases of typhoid fever, he had found there was perhaps one-half degree fall in the rectum, although there might be a marked fall in the mouth; and he had always regarded the rectal temperature as the true indication of the fall, and the mouth temperature as a side issue, to which he did not attach particular importance. He never valued it because he thought it would lower the temperature, but because of its effects on the central nervous system and through that upon the circulation. He believed that was the true value of it in such cases, and if it did act as a nervous stimulant, if it was energetic and lasting in its effects, it was of much more significance than the mere effect on the temperature.

As illustrations of the importance of attention to detail, the speaker said he could give examples of the way in which it is often laid down in the books, that baths should be given at such and such temperature, etc, and if this is carried out by physicians who have not used it much, exactly on these lines without reference to the marked difference we find among patients in their powers of reaction, the method will fail. Two cases will differ very much in the way they will react to treatment; and the details of the packs, the douches, or whatever is being used in the case, ought to be worked out by carefully feeling one's way with regard to that individual patient. Where the reaction was not good he had never hesitated in any form of acute disease to use alcoholic stimulants before the baths, and he would always do that rather than abandon the baths in such cases; and he had found that hot whiskey and water or brandy and water before the bath obviated entirely the unpleasant effect in such cases.

One other illustration of the importance of detail he said he should like to mention was in the method of giving the baths when the patient is not in the tub—the so-called sponge baths. It had always seemed to him that the sponge was the poorest thing that could be used. We cannot get friction from it, and it is cold in a disagreeable way. It is more apt to chill the patient, whereas if rough bathing gloves were used and the cold water rubbed on the patient, instead of being sopped on with a sponge, the effect would be markedly different. One very important factor is the pressure under which the douche or spray is applied, which is independent of the matter of temperature, and that is another thing that makes it in private houses almost impossible to secure the results that can be secured in an institution suited for the purpose.

THE PRINCIPAL DIURETIC MEDICAMENTS.

MARTZ, of the Faculty of Medicine in Lyons, gives a number of prescriptions for diuretic purposes. Pills composed as follows:

Extract of convallaria, 1 grain;
Powdered convallaria, 1 grain.
Make in one pill, and give a pill night and morning.

Or a syrup made of:

Extract of convallaria, 4 drachms;
Syrup of bitter orange, 6 drachms.
A teaspoonful night and morning.

In other cases we may use:

Tincture of squill, 75 minims;
Syrup of bitter orange, 1 ounce;
Distilled water, 3 ounces.
One teaspoonful every few hours.

Or,

Extract of squill, 1 grain;
Powdered squill, 1 grain.
Make into one pill, and give one night and morning.

Or,

Theobromine, 7 grains.
Place in one cachet, and give four a day.

Or,

Caffeine, 15 grains;
Benzoate of sodium, 30 grains;
Syrup of bitter orange, 1 ounce;
Water, 4 ounces.
This may all be taken in twenty-four hours.

Or again,

Powdered digitalis,
Powdered squill,
Powdered scammony, of each 1 grain.
Make into one pill, and give one such night and morning.

Or,

Carbonate of lithium, 7 grains;
Lemonade with carbonated water, 1 pint.
This to be drunk each day.

Or, by the bowel:

Nitrate of potassium, 30 grains;
Oxymel of squill, 6 drachms;
Milk, 3 ounces.
This is to be given by the bowel.

—*La France Médicale*, Feb. 24, 1899.

TREATMENT OF PALPITATION OF THE HEART.

LYON contributes to the *Revue de Thérapeutique Médico-Chirurgical* of February 1, 1899, a brief article on this subject. In the line of symptomatic treatment he orders absolute rest to quiet the circulation. External treatment may consist in the application of compresses wet with cold water to the precordia and spraying the skin of the chest over the heart with chloride of ethyl or ether. In other instances where an atomizer cannot be had, ether may be allowed to fall on the precordium drop by drop. Internally he prescribes the bromides in the dose of from fifty to sixty grains, thus:

Bromide of potassium,
Bromide of sodium,
Bromide of ammonium, of each 75 grains;
Syrup of bitter orange, 8 ounces.

A dessertspoonful to a tablespoonful of this may be given once, twice, or thrice a day.
Or,

Bromide of potassium, 75 grains;
Tincture of valerian, 1 drachm;
Syrup of peppermint, 1 ounce;
Water, 3 ounces.
A dessertspoonful to a tablespoonful a dose every few hours.

Or,

Monobromated camphor, 7 to 10 grains.
To be made into pills and all taken each day.

In regard to the treatment of a case in which the condition is one of erethism of the cardiovascular apparatus and hyperarterial tension, he not only prescribes rest, but orders an exclusive milk diet with the bromides and digitalis in small doses. Thus he gives

Bromide of potassium, 6 drachms;
Tincture of digitalis, 30 minims;
Distilled water, 10 ounces.

One or two tablespoonfuls may be given once or twice a day. In other cases strophanthus is of value; in others still, a pill composed as follows may be made:

Hydrobromate of quinine, 1 drachm;
Powdered digitalis,
Extract of convallaria, of each 30 grains.
Make into 40 pills, and give one from two to four times a day.

In the palpitation due to arterial sclerosis he also believes that a milk diet is useful, and he prescribes iodide of potassium associated with the bromide, thus:

Bromide of potassium, 6 drachms;
Iodide of potassium, 1 to 2 drachms;
Distilled water, 10 ounces.
Two or three teaspoonfuls two or three times a day.

In other cases digitalis in small doses is prescribed as follows:

Tincture of digitalis,
Tincture of squill,
Tincture of aconite, of each 1 drachm.

Ten drops of this may be given twice or thrice a day for eight or ten days.

In the palpitation which is due to tuberculosis, improved hygienic surroundings, absolute rest, careful regulation of the diet, broiled meats, milk, and easily digested vegetables are necessary. Tonic wines, as that of cinchona or kola, are useful. Coffee and alcohol are also to be given if needed.

For palpitation of the heart depending upon chlorosis and anemia, ferruginous preparations are required, such as lactate of iron, citrate of iron, and hydrotherapeutic procedures such as cold douches and the wet sheet. This treatment is particularly necessary in cases where there is vascular atony or spasm, and in the spasm cases small doses of nitroglycerin are of value.

In reflex palpitation due to disorder of the stomach, careful regulation of the diet and the use of gentle laxatives should be resorted to, and should the palpitation occur in women, attention should be paid to the uteroovarian apparatus, and metritis or prolapse should be carefully treated. Hydrotherapy is also useful in this class of cases.

When palpitation is due to toxic agents such as tobacco, coffee, or alcohol, the diet must be regulated, the most beneficial being the milk diet. The bromides may be given and hydrotherapeutic procedures resorted to.

In nervous palpitation, depending upon neurasthenia, the preparations of valerian are preferable to the bromides, and hydrotherapeutic procedures are very useful.

In palpitation associated with exophthalmic goitre he employs antipyrin, the bromides, and aconite, or should any evidence of dyspepsia be present he uses remedies for this condition.

THE TREATMENT OF EXOPHTHALMIC GOITRE BY SULPHATE OF QUININE.

PAULESCO, in collaboration with RAYNIER, has made certain studies in regard to the pathogenesis of exophthalmic goitre. He believes that the principal trouble in this affection is the vasodilatation which affects the blood-vessels of the neck and head. As the result of this distention we have tremor, the goitrous swelling, and active congestion of the thyroid body which produces in its turn a hypersecretion of the gland, and which has a distinct physiological action. Paulesco claims that he has employed the sulphate of quinine with remarkable results, arising from its influence in producing vasoconstriction of the vessels of the head and neck. He gives fifteen grains of it at night after supper, and again a quarter of an hour later. He states that this treatment decreases the tachycardia, diminishes the exophthalmus and the size of the goitrous swelling.—*Revue de Thérapeutique Médico-Chirurgical*, Feb. 1, 1899.

THE USE OF THYROID GLAND IN THE TREATMENT OF RHEUMATIC AFFECTIONS AND ARTERIAL SCLEROSIS.

LANCEREAUX and PAULESCO reported upon this subject to the Academy of Medicine of Paris at one of its recent meetings, and stated they believe that thyroid gland or its extract is useful in the treatment of chronic rheumatism and in the manifestations of arterial sclerosis, and also in vasomotor disturbances and in nutritional changes such as scleroderma.

In the case of a young woman who had suffered from a generalized scleroderma for two years, the results were most remarkable. The skin of the face was pigmented and had lost all its suppleness, so that the visage had became as immovable as a mask. The skin of the trunk and chest was pigmented and interfered with the movements of respiration, and there was also involvement of the skin and subcutaneous tissues in the upper extremities, so that there was difficulty of movement. Extract of thyroid gland given in the dose of seven grains a day, gradually increased in quantity as the patient bore it, produced rapid amelioration, the skin of the face becoming normal and that of the trunk more supple.

In a woman aged thirty-two years, with vasomotor disturbances in the extremities, similar treatment was instituted with advantage. When this patient was exposed to cold or suffered from emotion the extremities became exsanguinated and bloodless, and at times profuse sweating and salivation was present. Under treatment these symptoms entirely disappeared.

In a man of thirty-six years, suffering from chronic rheumatism with arterial sclerosis and high arterial tension with hypertrophy of the heart and sclerotic kidneys, thyroid gland given in progressively increasing doses did much good. The pains in the joints, the osteophytes, and the trophic troubles disappeared; at the same time the arterial tension was lowered, the polyuria and albuminuria decreased, the heart's action was quieted, and an arterial bruit disappeared.

Equally good results were obtained in a man of forty, who was suffering from general arterial sclerosis.—*Revue de Thérapeutique Médico-Chirurgical*, Feb. 1, 1899.

TREATMENT OF MOVABLE KIDNEY.

The *Archives of Pediatrics* for March, 1899, asserts that the treatment of movable kidney is not entirely surgical. In nearly every case some medical treatment is indicated, and in many cases no surgical treatment is required. When the affection, according to Comby, is latent or well borne, when the pains are moderate or intermittent in character, rest and an abdominal belt will suffice to relieve. Bandaging rarely succeeds on account of the great mobility of the displaced kidney. A flannel bandage wound several times round the body, and supporting the entire abdomen, is the best means of immobilization that can be devised. A bandage, however, tight enough to support the kidney is apt to cause colic or distress to the child.

It is of the highest importance that strain-

ing of the abdomen should be avoided; hence the bowels should be kept regular and free, dyspepsia should be promptly treated, and abdominal indigestion prevented if possible. Acute attacks of indigestion with vomiting should receive prompt treatment, for the act of vomiting is one of the most certain means of forcing a kidney from its normal position. It is practically impossible to keep a kidney in proper position after it has been once or twice displaced, if the child is subject to attacks of acute indigestion with vomiting.

The case should become a surgical one if the pains persist or become unbearable, or attacks of peritonitis or hydronephrosis through twisting of the ureter occur. An operation should then be performed for fixing the kidney to the posterior abdominal wall.

FOR REMOVAL OF WARTS OF THE LID.

ALMON BROOKS tells us in the *Ophthalmic Record* for April, 1899, that there is no remedy equal to fuming nitric acid, especially when applied on a toothpick or sharpened match, for the cure of warts on the lid. The growth is first denuded of its epithelial layer by means of a very sharp knife, when the sharp point of the stick carrying the acid is placed as nearly as possible in the center of the wart, and a boring motion imparted by rolling the stick between the thumb and forefinger. As soon as a smarting sensation is felt the application must be discontinued for the occasion. The process must be repeated (after three or four days), although two applications are usually sufficient when the papilloma is not large.

The advantages of this method are that it is painless, the absence of disfiguration during the treatment, the freedom from interruption of the usual occupation, and the recovery without a scar and usually without leaving a trace of the former site of the growth. It differs from the ordinary application of nitric acid in that the papilloma slowly shrinks and disappears, and is not merely burned away, as in the usual plan of dealing with such growths.

THE PROGRESS OF THE SERUM TREATMENT OF TUBERCULOSIS.

Dr. DAVIES, of Bristol, England, recently read a paper on the origin and development of bacteriology, in which he briefly traced the rise and progress of the germ theory of disease. He said that the science of bacteriology may be said to date from 1675, when Anthony van Leeuwenhoek, a linen-draper, became interested in optics, learned the art of lens grinding, and managed to produce a lens with which he saw in rain-water living motile animalcules, smaller than anything seen before. In 1683 he presented a thesis to the Royal Society in London on a micro-organism in tartar from between the teeth. Marcus Antonius Plancus was the next investigator, and produced some valuable additions to the study of bacteriology; but it was not until Henle took up the question that the subject was appreciated at its full significance. Every year has added to our knowledge, and the advance made toward solving the mysteries involved in the origin of disease has within a comparatively short period been nothing less than phenomenal.

Quoting from Dr. Davies' paper, the leading points in the development of bacteriological technique have been as follows: In 1854 the use of the cotton-wool plug filter (Schröder and von Dusch); sterilization of culture fluids by heat; discontinuous sterilization (Pasteur and Koch); 1877, Weigert's introduction of the aniline dyes for staining bacteria; 1881, Koch's introduction of solid culture media—plate methods. Between 1849 and 1863 Pattender and Davaine worked on the anthrax bacillus. Then came Pasteur's work on pebrine or silkworm disease. In 1873 Obermeier found the spirillum of relapsing fever. In 1880 Eberth and Koch observed independently the bacillus of typhoid, and in 1882 Koch published his discovery of the tubercle bacillus and Pasteur made his first communication on rabies. In 1884 Koch published his discovery of the cholera spirillum, and in the same year Loeffler described the diphtheria bacillus, and Nicolaier and Kitasato worked on the bacillus of tetanus. In 1892 the bacillus of influenza was discovered by Pfeiffer and Canon, and in 1894–96 Kitasato described the bacillus of plague then prevalent in Hong Kong. Although the origin of so many diseases has been shown to be bacterial, yet in the case of most of those in which an antitoxic serum has been also found and used, the treatment has hardly come up to the expectations formed of its efficacy. In no instance has failure been more conspicuous than in the serum treatment of tuberculosis. Kcch by his discovery of the bacillus tuberculosis effected a complete change in the popular view regarding that disease, and when he later announced that he had also discovered its antitoxin, hopes

were raised that at last the scourge might be eradicated. Of course, the fact that these views were far too sanguine was soon made clear, and in the natural reaction of mind that followed a declining interest has been taken in the investigations of the workers who, undaunted by the first discouraging result, have ever since been plodding steadily on toward the desired goal. It cannot be asserted that their labors have as yet been attended by a large measure of success, or, indeed, that any definite advance has been made in the endeavor to produce a curative serum for tuberculosis. Nevertheless the fact that tuberculosis is not an actively infective disease should always be borne in mind, and that in consequence the difficulties in the way of finding thoroughly effective antitoxin are immensely increased.

The transference of immunity to tuberculosis was, as is pointed out by Dr. E. L. Trudeau and Dr. E. R. Baldwin, of the Saranac laboratory for the study of tuberculosis, successfully accomplished even earlier than the development of tetanus and diphtheria antitoxin. In 1888 Héricourt and Richet reported favorable results in transferring immunity to tuberculosis from dogs to rabbits by serum injections. Dr. Trudeau has been engaged in experiments on immunity to tuberculosis since 1891, and together with Dr. Baldwin since 1894, and the two have recently published a paper treating of their studies with serums during the latter period. The studies in question have been entirely confined to such experimental proof of the presence of curative and antitoxic properties in serums as could be obtained by laboratory methods, and the results of four years' work in experiments upon four sheep, three asses, twelve fowls, eighteen rabbits, and four hundred and fifty guinea-pigs is as follows:

1. A sheep was injected intravenously with killed thymus cultures. The result was so unsatisfactory that the serum tests were not conclusive.

2. Chickens were inoculated intraperitoneally with mammalian tuberculosis. The serum revealed no germicidal or inhibitive action on the tubercle bacilli, nor favorable influence on the course of the disease in guinea-pigs.

3. A sheep was injected with tuberculin. The serum was wanting in germicidal, antitoxic, or curative effect, so far as tested.

4. A sheep was inoculated intravenously with non-virulent cultures. Cachexia followed, and the serum was therefore not used.

5. An ass was inoculated as in 4; it died from pulmonary embolism. The serum was not bactericidal to tubercle bacilli.

6. An ass was inoculated with virulent tubercle bacilli and treated with tuberculin. The serum showed no germicidal nor curative but possibly some antitoxic effect.

7. An ass was inoculated with non-virulent tubercle bacilli and treated with various extracts of tubercle bacilli and dead bacilli. The serum showed no activity.

8. Rabbits were inoculated with non-virulent and virulent tubercle bacilli and recovered. Their serum possibly conferred some protection in tuberculin poisoning and possibly prolonged the lives of treated guinea-pigs.

The chief lesson learned from these experiments is that none of the serums appeared to prevent local or general reaction from small doses of tuberculin, nor to influence the temperature of tuberculous animals. The progress made in researches having for their object the discovery of an antitoxin for tuberculosis is slow and disappointing compared with the rapid strides toward perfection taken by the antitoxins for diphtheria and tetanus. Every day, however, fresh knowledge is being gathered in this particular branch of science, and the deeper the insight gained into the subject of immunity and antitoxins generally, the brighter will the outlook appear for the discovery of a tuberculosis antitoxin which will effectually cure the disease.—*Medical Record*, April 8, 1899.

ANTIPYRIN IN DYSENTERY.

ARDIN-DELTAT has employed antipyrin in the dose of seventy-five grains to eight ounces of water as a rectal injection in dysentery, given three times a day and retained for fifteen minutes. He claims that the relief from pain and tenesmus is immediate, that the number of stools is decreased, and that convalescence is speedily established.

STARCH DIGESTION IN THE STOMACH.

AUSTIN states the result of a research on his part upon this subject in the *Boston Medical and Surgical Journal* of April 6, 1899. He says that from the results of his experiments the following facts seem to be well established:

Taka-diastase digests starch with remarkable rapidity in a neutral or slightly acid medium; and its rapidity is directly propor-

tional to the quantity of taka-diastase used. Taka-diastase in the above medium is capable of digesting three hundred times its own weight of starch in one hour.

The digestion of starch by taka-diastase is accelerated and enhanced by the presence of a small quantity of free hydrochloric acid, while beyond a certain amount the free hydrochloric acid retards and eventually arrests the diastatic digestion.

The digestion of starch by taka-diastase is not interfered with by organic acids for all practical purposes; on the contrary, the presence of a small quantity of organic acid enhances the diastatic digestion of starch.

The presence of albumin combined with hydrochloric acid seems to lessen the hindering action of free hydrochloric acid on starch digestion.

Albuminous foods—both of animal and vegetable origin—combine with, or neutralize, free hydrochloric acid of gastric juice, making the acid perfectly inert. The combined hydrochloric acid has no hindering action on diastatic digestion by starch.

In dogs' stomachs, when albuminous foods are given with starchy food, no free hydrochloric acid is found at the end of one hour, and in the meantime starchy foods are perfectly digested.

In the human stomach, when an ordinary regular meal is taken, the albuminous matter of the food combines with the hydrochloric acid of the gastric juice as fast as it is formed at least for a period of one hour, and such combined hydrochloric acid has no hindering action on starch digestion, and the diastatic digestion of starchy food is practically completed within that period.

SOME OBSERVATIONS UPON ERYSIPELAS AND ITS TREATMENT.

CHARLES M. ALLEN writes on this subject in the *Medical News* of April 8, 1899. He states that in treating and observing a group of one hundred cases he has been struck with the frequency of coexisting or preceding nasal affections in the facial cases. In former times these were almost always put down as "idiopathic," in contradistinction to the traumatic forms, or those in which some solution of continuity of tissue could be discovered. He says it has become his conviction that in the absence of cutaneous lesion or throat affection to account for it, the nose is the part through which ingress is effected by the cocci. In every instance of facial erysipelas observed (and the great majority have been of this variety) he has inspected the nares and made inquiry regarding nasal disease. The result has been that at least two-thirds of the patients gave evidence or history of disease.

Believing as firmly as he does in the efficacy of ichthyol, Allen has naturally turned to this remedy as well in combating the process at its seat of origin, and has applied in all cases a fifty-per-cent watery solution of ichthyol, so as to bathe the whole anterior and posterior nares as far as possible, covering over all fissures and excoriations at or near the introitus. Upon the skin surface he employed a twenty-five-per cent solution in collodion. The results have been surprisingly good, and he has repeatedly been able to demonstrate to his assistants and to students a complete cessation of the process, so far as symptoms, temperature, and objective signs go, within twenty-four hours of the first visit. Many other patients were discharged cured upon the second or third day. Almost all the cases were seen early—*i.e.*, in from twelve to twenty hours of the chill or earliest evidence of local inflammation.

Aside from an occasional prescription of ichthyol in pill form to correct some gastro-intestinal disturbance, or something to relieve headache, no internal medication whatever has been made use of during the attack. During several years he has not given a single dose of tincture of iron in erysipelas. The adhesive band has been applied in a number of instances, usually in erysipelas of an extremity, in combination with the ichthyol paint, and always with the most gratifying results.

There have been no deaths to record in these one hundred cases, so far as Dr. Allen has been able to follow them, or to learn from the district visiting physician who might have seen some of the patients subsequently, although extremes of age are represented. In view of the fact that many subjects gave a history of one or more previous attacks, and the well known tendency of facial erysipelas to recurrence, he would strongly recommend attention to the nose and throat as a prophylactic measure, and has no doubt ichthyol will be found a useful drug in ozenas and chronic conditions requiring antiseptic and deoxidizing or reducing agents. The advantage of rubber adhesive plaster bands over the application of several layers of contractile collodion is that the latter is apt to break at some point,

and it is through this open door that the erysipelatous process is seen to advance into new territory just as water rushes through a break in a dam and overflows the plain.

Dr. Allen recently treated a number of children for erysipelas of the extremities, and has had most prompt results from what he calls his "combined method." He now has about fifty cases in which the adhesive constriction has been combined with collodion painting. He feels confident that if this plan be resorted to early and be properly carried out, no necessity will arise for scarification to produce a barrier, nor for resort being had to antistreptococcic serum, which so far as he can learn is of doubtful efficacy in severe cases in infancy and childhood.

BLACKWATER FEVER.

The Lancet of April 1, 1899, contains an article by CROSSE on this important subject. After discussing the pathology of blackwater fever, and showing what he holds to be its connection with malaria, Dr. Crosse comes to the practical question of its treatment. In dealing with this it will be well to bear in mind that three distinct factors are present. There is, in the first place, the attack of malaria during which the hemoglobinuric paroxysm develops; secondly, there is the chronic malarial toxemia which has predisposed the patient to the attack; thirdly, there is the sudden loss of hemoglobin, which in its effect in no way differs from an ordinary severe hemorrhage. The above are present in all cases. Sometimes there is another factor present in the subsequent nephritis. It is clear that only the first of these—namely, the malaria—would yield to quinine. So far as is at present known, quinine has only a parasiticide and not an antitoxic function in malaria, and hence it cannot be relied upon for treatment of toxemia, and obviously not for the hemorrhage. Quinine, therefore, should be given in blackwater fever, but with the express object of clearing the blood of malarial parasites, and hence it should be given in full doses similar to those given in ordinary attacks of tropical malaria. It must, however, be clearly understood that by the time a patient has reached the point of hemoglobinuria his tissues are probably much degenerated and his vital functions seriously lowered; hence, though we may cure his malaria by quinine, we must not be surprised should he succumb.

A cachectic patient may be unable to withstand a severe hemorrhage; when to this is added the constant and distressing vomiting which often involves starvation, he is clearly liable to die from exhaustion, as many of the patients certainly do. On the other hand, this is a very different thing from saying that quinine is of no use in blackwater fever. Dr. Crosse holds that it should be always administered in doses sufficient to make it certain that the blood is freed from parasites, just as the first step in the treatment of a patient suffering from sapremia due to retained placenta is to clear out the uterus and so remove any danger of further infection.

It is frequently difficult to efficiently administer quinine by the mouth on account of the persistent vomiting, and administration by the rectum is unsatisfactory. The author is himself a strong advocate of the hypodermic administration of quinine under these circumstances, and in this practice says he is supported by the profession in Italy and in America—though, as far as he knows, many English medical men hesitate to adopt it. The advantage of the hypodermic method is sufficiently obvious, for one can rest assured that the dose which we administer is actually absorbed. The supposed difficulties are really hardly worth our consideration if we are thoroughly aseptic. Sulphate of quinine is not suitable for hypodermic injection. Perhaps the best salt is the hydrochlorate, which is chiefly used in Italy; it is soluble in its own weight of water. The acid hydrobromate, which is soluble 1 in 6 of water, may also be used, especially if the patient is liable to cinchonism. Personally, when in Africa, Dr. Crosse used the lactate, which is soluble (according to Squire, seventeenth edition, 1899) 1 in 6 of water. He is inclined to think that ten grains of quinine administered hypodermically every eight hours on the first and second day would be a sufficient dose; after this, he suggests that five grains should be given twice a day till the end of the attack. He also mentions that he always boils the solution of quinine and injects it while it is quite warm. When the drug cannot be administered hypodermically larger amounts may be necessary. In a case of blackwater fever which he recently saw in England, quinine was at first given by the mouth; the patient had a relapse. It was then given hypodermically, and the patient recovered without any further relapse. It is of course to be remembered that quinine will accumulate if the urine is either greatly reduced or suppressed, and therefore it must not be contin-

ued in the same doses should this contingency occur.

So much for the treatment of the malarial element; as regards the other two factors the main indications are to maintain free excretion with the view to liberating the body from the accumulated toxins and to procure rest and nutrition, which will enable recovery from the anemia to take place. If the bowels are not opened a cholagogue purgative and enema should be given; but overpurgation should be avoided. Dr. Crosse always administers sodium bicarbonate freely; this helps to allay vomiting and gastric pain, makes the patient more comfortable, does good by its diuretic action, and also helps to diminish the acidity of the urine. Opium should be given without hesitation to procure rest. Nutrition must be maintained by rectal feeding if necessary. Strychnine and digitalis may be necessary in cases of extreme asthenia; they will act beneficially by helping to maintain the renal blood-pressure and therefore the secretion of urine, for doubtless some of the cases of anuria occurring in blackwater fever are the result of collapse and not of nephritis. If nephritis occurs the usual remedies are to be adopted, but caution should be used in the administration of such depressing drugs as pilocarpine, from the use of which he has seen disastrous results; if it is decided to administer this drug, not more than one-sixth of a grain should be given at one time. After recovery the patient ought to be advised to take a holiday, if possible in England, and should not return at any rate until he has completely recovered from his anemia and cachexia. Indeed, on general principles it is probably desirable that no one should return to Africa after an attack. This is particularly the case where the blackwater fever has developed in spite of precautions, but applies less to those cases where the attack can be traced to exceptional hardship and privations which are not likely to be repeated. Those who, from one cause or another, cannot stand quinine, and those who suffer from even slight albuminuria, should not be selected for malarious climates. Finally, Dr. Crosse urges that prophylaxis of blackwater fever by habitual use of quinine will be found to be more hopeful than its treatment. He has come to the definite conclusion that besides adopting precautions in regard to exposure to chills, wet, and to the sun, and as to moderation in food, alcohol, and sexual matters, every resident in the more malarious parts of Africa should take at least five grains of quinine each day. In the large majority of cases Dr. Crosse believes that this would prevent the chronic malarial poisoning which is the predisposing cause of blackwater fever, and would do much to eliminate this scourge from the colonies.

THE COMPLICATIONS OF THE SERUM TREATMENT OF DIPHTHERIA.

This important theme is well discussed by BOLTON, of Homerton, in *The Lancet* of April 1, 1899. He thinks that the value of the serum treatment of diphtheria being now thoroughly established, its complications, which are fairly constant, become somewhat important. During the past few months Dr. Bolton has collected at the Homerton Fever Hospital one hundred cases which he has personally examined each day, and on these cases his paper is based. These complications are the following: rashes, pains in and around the joints, fever, transient albuminuria, abscess, bruising, and sloughing at the seat of injection, and certain constitutional disturbances.

Bronchopneumonia, nephritis, and other inflammations, and also sudden death following the injection of antitoxin serum, have been recorded, but nothing of this kind has occurred in the London hospitals, where several thousand injections are given annually. The blood-serum is responsible for causing the rashes, the pains, and the fever, as these occur whether the horse from which the serum is taken be immunized or not. Different horses produce different effects with regard to the prevalence of pains and the proportion of the varieties of rash, and hence the percentage of these varies constantly. The effect of dose on the frequency of the rashes is very little if anything. Dr. Bolton has calculated out the average dose of all the patients treated at the Homerton Fever Hospital from January to June, 1898, neglecting those who died before the rash had time to appear, and finds that of those who developed a rash it was 6223.5 units, and of those who had no rash it was 5332.1 units. During the same period 166 patients had multiple injections, and of these 90 had a rash and 76 had no rash; and 351 patients had each one injection, and only 156 had a rash and 195 had no rash. Hence it is probable that large and also multiple doses increase the frequency of the rashes to a slight extent. Adults are more liable to severe pains than children. The severity of the

attack of diphtheria and the day of the disease on which the antitoxin is administered have no influence on the frequency of rashes and pains. For the year 1898 the percentages at the Homerton Fever Hospital were: rashes, 43.2 per cent; pains, 7.4 per cent; fever alone, 3.6 per cent; and abscess, 1.3 per cent.

There are two varieties of rashes, urticarial and erythematous, and these may occur alone or be combined in endless variety. Of the 100 cases, 25 were urticarial, 31 were erythematous, and 44 were combined; and of the latter 26 were mixed and 18 were successive, the rashes following one another immediately or after an interval of from one to five days, either urticaria or erythema coming first. There may be more than two rashes of the same or different variety following one another. The time of appearance of these rashes varies from the second to the eighteenth day after injection, exceptional cases occurring at earlier or later periods, but the vast majority occurring from the seventh to the ninth day after injection. The dose does not affect the severity or time of appearance of the rash; doses of 4000 units, 8000 units, 12,000 units, 20,000 units, and 24,000 units may all cause a rash on the eighth day; 4000 units may cause it on the second day, or 8000 units on the eighteenth day. Multiple doses given at intervals of a day do not affect the time of the appearance of the rash, but if a patient has had antitoxin administered a month or two previously the rash which is caused by a subsequent injection comes out very early, in some cases from twenty to thirty minutes after the injection. The rashes last for two or three days as a rule; they often last for a week, and sometimes for sixteen days.

The wheals occur in groups and vary in size from a papule to a patch of half the size of an adult hand. They disappear quickly and leave patches of simple erythema, and are replaced by fresh ones. A wheal may come and go in half an hour, and successive crops may come out at intervals of from one to four days. Itching is present, and there may be *urticaria factitia*. The distribution is usually general. The favorite places on the trunk are the seat of injection, the shoulders, and the buttocks. Both the flexor and the extensor surfaces of the limbs are involved, but the latter more frequently than the former, and patches tend to collect round the joints. The neck, the cheeks, and the eyelids are commonly affected. The rash frequently begins at the seat of the injection and may remain limited to this area, and in a few cases the limbs alone are affected. Edema of the cellular tissues often accompanies the urticarial eruption. The eyelids, the base of the nose, the cheeks, the lips, the scrotum, the prepuce, the labia majora, and the dorsa of the feet and the hands are the parts commonly affected; sometimes the whole of a limb is swollen, or in rare cases the whole of the body. The edema lasts from one to four days and may be accompanied by enlargement of the lymphatic glands.

Of the erythematous rashes there are four types: (1) resembling erythema multiforme, either clearing up in the form of rings or not, and sometimes becoming hemorrhagic; (2) simple erythema in patches; (3) scarlatiniform, resembling scarlet fever; and (4) morbilliform, resembling measles.

The first variety consists of maculæ, which may or may not be raised, and which vary in size from that of a papule to about that of a shilling. Large patches are formed by fusion, which may involve the entire circumference of a limb, or the maculæ may be chiefly discrete, and on the trunk especially they tend to be small, frequently giving rise to a very coarsely punctate appearance. The fusion into patches is especially marked on the extensor surfaces of the joints, and sometimes the skin desquamates in this situation and gives rise to the appearance of psoriasis. The maculæ are bright red or almost purple in color, and are sharply defined, the intervening skin being normal. Occasionally a few tiny vesicles may be seen on their surface. If the maculæ and patches clear up in the form of rings the latter may join together, forming gyrate figures, or they may be small and more or less discrete. On the trunk and opposite the joints huge rings may be formed, and on the trunk a large ring may sometimes be seen having its periphery formed of tiny macules more or less fused, with free macules dotted round its circumference, and the center fawn-colored and slightly desquamating. In a few cases the rash becomes hemorrhagic and a mottled pigmentation is left for a few days. There may be a little desquamation, and sometimes there is itching. The distribution of the rash is more definite than in the urticarial variety. On the limbs it is much more common on the extensor than on the flexor surfaces, and it is also more profuse on the extensor aspect, especially round the joints, where large patches or rings are very fre-

quent, with small macules extending up and down the limb. The rash occurs over the front and back of the trunk, forming large patches at the seat of injection (in the loin) and on the buttocks. It may be present on any part of the face and sometimes behind the ears. It may commence on the limbs, but very frequently at the seat of injection, and its distribution is usually general, although it may be limited to the limbs or the seat or seats of injection.

The simple erythema consists of non-raised, ill-defined, bright-red patches of irregular shape producing a blotchy appearance. It is most frequently the result of wheals, but it undoubtedly may occur independent of them. It occurs commonly at the seat of injection, where it sometimes extends from the loin on the back and the abdomen as a punctate erythema. It forms patches on the cheeks and on any part of the trunk and limbs. These erythematous patches are very fugitive, and it is often very difficult to say whether they are or are not the result of wheals. In some instances, as on the buttocks, they are due to pressure. There is no desquamation.

The scarlatiniform rash occurs very early and when the patient has had a previous injection some time before. In one case the patient had had antitoxin administered five months previously, and the rash came out on the day following the injection of 4000 units. This rash lasted for one day, and was replaced by an urticarial eruption lasting for four days; a macular rash then appeared for two days, and finally a crop of wheals for one day. The rash is a scarlet punctate erythema, thickest round the seat of injection, where it forms a bright-red flush. It is often thicker on the extensor than on the flexor surfaces of the limbs, and frequently clear patches of skin are visible. It may occur in patches only, chiefly on the trunk, and it is then combined with other rashes. When general it may be distinguished from scarlet fever by the usual absence of vomiting, the rapid disappearance of the rash, and the occasional patches of clear skin. It may also be accompanied by other rashes. Desquamation does not usually occur, and the rise of temperature may be slight.

The morbilliform rash is more frequent than the scarlatiniform, and is commonly preceded by an urticarial eruption, but it may occur alone. This rash is a macular erythema like measles, but it may begin on any part of the body and especially on the limbs, where it is more profuse than on the trunk and face. It is thickest on the extensor surfaces of the limbs, forming patches round the joints, and may be seen behind the ears. Patches of clear skin may be seen, and there may be ring-formation during the disappearance of the rash, which as a rule leaves no desquamation. There is conjunctivitis and frequently swelling of the lids, but sneezing and cough are as a rule absent. The rash lasts from three to four days, and there are commonly pains in the limbs. Fever may be absent, but as a rule the temperature suddenly runs up to about 103° F. when the rash appears, and falls either just before or when it disappears. Six out of the one hundred cases were of this variety. Four appeared on the fourteenth day after injection (the incubation period of measles being on the average about ten days), and had doses respectively of 4, 12, 16, and 24,000 units. The remaining two appeared on the twelfth and fifteenth day, and each had a dose of 12,000 units. Five were preceded by an urticarial eruption, and one by urticaria and macular erythema combined at the seat of injection. It is interesting to note that the scarlatiniform rash comes out much earlier than the morbilliform variety, and that the incubation period of scarlet fever is from two to four days, as compared with that of measles, which is ten days. By attention to the above points these two important rashes can generally be diagnosed from scarlet fever and measles respectively.

The joints and surrounding tendinous and muscular structures are affected, and there may be a little swelling of the joint, but it is quite the exception to find much fluid in the joint, and the skin over it is usually normal. In some cases the pains and temperature simulate acute rheumatism. The pains shoot about and shift from joint to joint, and there is also constant aching and intense pain on movement. There may be headache and furred tongue, and sodium salicylate produces relief. This condition lasts for three or four days, and in one case it lasted nine days. In other cases there may be simply a little aching in one or two of the joints which lasts for a day or two. When the pains have gone stiffness on moving the limbs is complained of. The joints most commonly affected are the knees, the remaining joints of the limbs being affected about equally. The hips, the knees, the wrists, and the hands are more commonly affected alone than any other joints. The

vertebral column is also frequently affected, and stiffness and pain in the neck and back are complained of. There is commonly pain in the temporomaxillary joint on opening the mouth, and less frequently in the sterno-clavicular articulation. There is sometimes pain down the inner side of the thighs, in the popliteal space, and in the muscles of the calf. The pains occur with all forms of rash, and the temperature in these cases is usually coincident with the pain, except in the morbilliform cases, when the temperature is coincident with the rash. There may be a thick rash and shooting pains without any rise of temperature at all. The rash is frequently more profuse around the affected joints, and it may begin in the limb which is first affected by pain. The rash usually appears first, and the pain may occur at any time during the course of the rash, or exceptionally after it has disappeared. Less frequently the pain may begin and the rash appear in a day or two. The rash may start at the seat of injection, and when the limbs are attacked the pains appear.

A rise of temperature occurs most frequently with rash and pain, next rash alone, and rarely with pain alone. On referring to old notes of cases, rises of temperature are found at periods corresponding to those of the appearance of the rashes without anything to be noted to account for them, but personally Dr. Bolton says he has not observed a case of fever alone without either enlarged glands, otitis media, or some other cause. Fever occurs about equally with all forms of rash, and when associated with both rash and pain is almost always coincident with the pain, except in the morbilliform cases. When associated with rash alone it generally appears with the rash and may last throughout or disappear in a day or two. The rash may appear first, and sometimes the temperature only rises during the latter half of the period of the rash. In some cases the rise of temperature may precede the appearance of the rash. The course of the temperature curve is irregular, and its height may be anything between 100° and 105°, being especially high when associated with pain or in the morbilliform cases. Of the 100 cases, 26 had fever associated with rash and pain, 17 had fever with rash alone, 46 had rash alone, and 11 had rash associated with pain.

Of the 100 cases, 54 had albumin in the urine, and in 25 of these it was present before the rash appeared. This leaves 29 cases in which there was albuminuria during the course of the rash. In 24 of these cases there was a trace of albumin only, and it lasted from one to three days, and in two cases for six days, disappearing before the rash had gone. In the remaining five cases the albumin was present in considerable quantity, and outlasted the rash in three cases, disappearing with it in two cases. Neglecting these five cases, there remain twenty-four cases in which a trace of albumin appeared in the urine after the rash had come out and disappeared before the rash. Eleven of these cases had more or less fever at the time; hence there are left thirteen cases out of the one hundred with nothing to account for the albuminuria except that it was coincident with the rash. It may be argued that this albuminuria was a result of the disease itself, but on referring to the report for 1896 of the Metropolitan Asylums Board, it is found that the percentage of albuminuria for that year when antitoxin was used was 53.4 as compared with 24.1 in the year 1894, when no antitoxin was used. During the year 1896 every case of albuminuria, however slight, was included; but in 1894 at some of the Board's hospitals these slight cases were neglected, hence the percentage 24.1 is probably not high enough. However, under any circumstances there must have been a considerable difference in the two percentages, and this evidence is taken in favor of the fact that the thirteen cases mentioned above were the result of the serum. The amount of albumin was so slight, and it lasted for so short a time, that no possible harm could have resulted to the kidneys.

Abscess at the seat of the injection is no doubt due to infection through the needle, and is usually found in septic cases and in those complicated with scarlet fever. It is recognized in a few days as a tender, deep, localized swelling, the skin over it being normal. It readily heals up on being incised.

Bruising occurred round the seat of injection eight times in the one hundred cases. It may be at first of the size of a shilling and increase very little, or it may spread to the size of the palm of the hand. It appears in from one to four days after the injection, and lasts from four to seven days. In three cases the bruising was surrounded by a zone of small macules; in one of these the erythema came out with the bruise on the day after injection and disappeared on the following day, leaving the bruise. In the other two cases the bruising came out on the third day

after injection and the erythema two days subsequently; the latter became hemorrhagic, lasting for seven days.

Dr. Bolton says as far as he is aware there is only one case of sloughing on record. The patient was one year and ten months old, certified as diphtheria, 6000 units of antitoxin being injected. On the next day the case was found to be scarlet fever. Eighteen days afterward the patient developed laryngeal diphtheria, and 8000 units was injected into the left loin. Half an hour after this latter injection there was a general eruption of wheals, and on the following day a bruise appeared at the seat of injection, which was surrounded by a red flush. Bullæ then formed upon the affected skin, which subsequently sloughed over a considerable area, the underlying muscles being exposed. The child, who was seriously ill with scarlet fever and diphtheria, died at the end of fifteen days.

Three cases suffered from constitutional disturbance occurring soon after the injection, and they have been published in the appendix to the report of the Antitoxin Committee of the Clinical Society of London. In each case the patient had had previous injections, and each recovered. They all occurred during the year 1897, at the Homerton Fever Hospital, and were female children aged respectively four, six, and three years. The first patient (thirty-five days previously) had 12,000 units injected in three doses. Twenty minutes after an injection of 4000 units the patient had a rigor and convulsions with a temperature of 105° F. When this passed off the child vomited several times, and on the following day there was a mixed urticarial and erythematous rash. The second patient had 4000 units thirty-seven days previously, and thirty minutes after the injection of 4000 units had a rigor and became quite collapsed, with a temperature of 105°. On the following day a mixed erythema and urticaria appeared at the seat of injection. The third patient had been given 14,000 units forty-seven days previously, and fifteen minutes after 4000 units had been injected the patient vomited and was covered with a general urticarial eruption. Two hours later she had a rigor with collapse, and six days later still a macular erythema appeared.

In conclusion, one may say that the complications of antitoxin are at times very painful and inconvenient, but quite harmless, the only exception being the case in which sloughing occurred, and in that case the child was in an exceedingly bad condition as the result of scarlet fever and diphtheria combined when the antitoxin was administered.

CEREBELLAR ABSCESS.

GREEN (*American Journal of the Medical Sciences*, April, 1899) reports in very complete detail four cases of cerebellar abscess, and concludes that otitic abscesses of the cerebellum are due to extension of the inflammation either through the inner wall of the mastoid or through the labyrinthine passages. In the former the abscess is in the posterior portion of the cerebellum; in the latter in the anterior portion. The posterior abscesses can be reached by removing the inner wall of the mastoid, and then, by rongeurs or gouge and mallet, carring the opening backward to any desired extent, thus exposing the cerebellum below and behind the lateral (sigmoid) sinus, thus giving most thorough and efficient drainage.

The anterior abscesses, such as those reported in the paper, offer much greater difficulties. They lie so far forward that to reach them from an opening behind the sinus involves puncturing the brain for from an inch to an inch and a half, and drainage for this distance nearly on a level must be inefficient. To reach them from an opening in the occipital bone below the superior curved line requires a greater length of puncture and gives even less favorable conditions for drainage. From a point just in front of the sinus, however, the distance to the orifice of the aquæductus vestibuli is only about one-fourth of an inch, and to the meatus internus about three-fourths of an inch. The posterior surface of the petrous bone can be removed for some distance forward and inward from this point, however, thus reducing these distances one-half. This method has the advantage of allowing the surgeon to explore outside of the dura along the posterior surface of the petrous bone, which cannot be done in most cases from an opening behind the sinus on account of the great projection of the vein. It has the disadvantage that the opening can never be very large, about half an inch in diameter being its greatest size. The removal of the posterior surface of the petrous, where the bone is very thick, solid, and lying deep, is much facilitated by the use of gouges slightly curved on their hollowed sides for half an inch at the ends.

Whether these anterior cerebellar abcesses

will prove to be as amenable to treatment as the posterior ones experience has yet to show. The cases cited show the difficulties of reaching the lesion, even after it has been located, for in all three the labyrinth was the path of infection.

FURTHER CONSIDERATIONS OF THE MECHANISM OF EAR VERTIGO AND ITS RELIEF BY REMOVAL OF THE INCUS.

BURNETT (*American Journal of the Medical Sciences*, April, 1899) appends to his article with the above title a case of parotitic ear vertigo cured after a year's duration by removal of the incus.

The paroxysmal nature of ear vertigo can be explained only by assuming that it is due to temporary increase in retraction and impaction of the stapes in the oval window or temporary engorgement of the labyrinth from within, without compensatory yielding of the stapes, and a consequent pressure on the labyrinth water and the ampullæ. That such is the mechanism of ear vertigo is demonstrated by the curative effect of removal of the incus and liberation of the stapes. Why true ear vertigo occurs paroxysmally cannot be explained, but Burnett suggests that it is due to varying degrees of tension in the chain of ossicles or in the labyrinth fluid. The latter, being a part of the lymph system of the subarachnoid space (Hasse), must be subject to varying conditions of tension, as are the ventricles of the brain or the cerebrospinal fluid. Ordinarily the compensatory yielding of the fenestræ of the labyrinth toward the drum cavity is sufficient to prevent undue pressure in the ampullæ and vertigo. If, however, these yielding points are stiffened as in chronic middle-ear catarrh, in which there is always more or less retraction and impaction of the stapes and thickening of the membrane of the round window, then either an increased quantity of endolymph or perilymph, or both, emanating from the cranial cavity, or a spasmodic or further retraction of the chain of ossicles and impaction of the stapes from tympanic causes, as occurs in chronic aural catarrh, is competent to excite a paroxysm of ear vertigo.

If the liability to these paroxysmal impactions of the stapes can be prevented and greater freedom given to the movement of the stapes outward when its foot-plate is pressed upon from within, ear vertigo from the causes mentioned can be prevented. Such immunities can be granted by removal of the incus and consequent liberation of the stapes. In twenty-seven cases of ear vertigo in which Burnett thus liberated the stapes, entire freedom from incapacitating attacks of ear vertigo followed the operation. This relief did not always come at once, as long a time as six months having elapsed in some instances before entire relief was obtained; but in some of the worst cases immediate relief followed the removal of the incus, as in the case reported. In a few cases the tinnitus was entirely relieved, and in the rest of the cases greatly relieved, by the operation. The hearing, uniformly very defective in true ear vertigo, was uninfluenced by this operation.

TREATMENT OF TETANUS BY INTRACEREBRAL INJECTION OF ANTITETANIC SERUM.

QUÉNU (*Journal des Praticiens*, No. 11, 1899) reports five cases of tetanus, two of which occurred in his own practice, the remainder in the practice of Beurniur, Veslin, and Lariau. These were all treated by intracerebral injections of antitetanic serum, and all died.

TREATMENT OF ABSCESS OF THE BRAIN.

COLLINS (*American Journal of the Medical Sciences*, April, 1899) terminates a clinical summary of the treatment of abscess of the brain by the statement that a brief retrospect of the more important literature on brain abscess for the past year shows a deplorable mortality. The most potent factor in contributing to this frightful mortality is the failure to recognize the existence of abscess of the brain before it has produced either septic complications or profound exhaustion. Surgical technique has apparently very little, if anything, to do with it. The mortality-rate of brain abscess will drop just in proportion to the earliness of recognition and the courage of the physician in directing the surgeon to seek for it, even though there be no exact localizing symptoms. Abscess of the brain secondary to middle-ear disease is located in the vast majority of cases either in the temporal lobe or in the cerebellar hemisphere of the same side. When one is reasonably sure of the existence of brain abscess, no hesitation should be had in exploring first one of these regions, and then, if it is not found, the other. Delaying the operation until the appearance of unequivocal localizing symptoms, or procrastinating by operating

on the mastoid after symptoms of brain abscess are evident, when one is reasonably assured that abscess exists, is a far greater injustice to the patient than subjecting him to an exploratory trephining.

THE SURGICAL TREATMENT OF PERFORATING AND BLEEDING WOUNDS OF THE CHEST.

MATAS (*Journal of the American Medical Association*, April 1, 1899) in his paper upon this subject recognizes that there will ever be a certain percentage of penetrating chest wounds which will inevitably end in death, just as there will be others that will recover without treatment, with the simplest mode of treatment, and even in spite of treatment. But there is an intermediate zone, occupied by those in whom it is evident from the first that they have not sustained an immediately mortal injury; it is this doubtful zone which will furnish the battle-ground in which it will be possible for timely and skilful intervention, with the new aids here described, to tip the balance so that some will live who would otherwise die.

The dangerous hemorrhages of the chest that more frequently give the surgeon an opportunity for the application of direct hemostasis are those resulting from parietal, pulmonary, and diaphragmatic wounds. Hemorrhages from the aorta and its large intrathoracic branches, the heart, the pulmonary arteries and veins before they penetrate the hilum, the venæ cavæ and venæ azygos, are promptly fatal, especially if due to gunshot wounds; indeed, these are the chief causes of the great mortality from chest wounds on the battle-field. The fact that bleeding from the internal mammary or intercostal vessels is frequently covered up was clearly impressed upon the mind of the author by two cases of stab wounds of the internal mammary artery and one of the intercostals that came under his own observation. In at least one of these cases a careful and thorough examination would probably have averted a fatal end.

In conditions of great exhaustion, and where there is doubt that bleeding is actually going on, it may be sufficient to plug the wound with a bag, which is then so thoroughly packed with gauze that by making traction upon its neck the wounded vessel is firmly compressed from within outward; but when the situation does not improve, and there is evidence that bleeding is going on, the quickest and surest treatment is to enlarge the wound, using cocaine anesthesia as a help in extreme exhaustion, and to expose the intercostal or internal mammary. A subperiosteal resection of the rib is usually certain to expose the bleeding vessel, and is so easily accomplished that there is no excuse for delay in critical conditions when the patient's life hangs in the balance.

As to what shall be done in case the hemorrhage is from the lung, and not from the parietes, it can be stated that as yet there is no commonly accepted order of procedure. Superficial wounds of the lung give rise to insignificant hemorrhage, and the parenchyma bleeds but little. Nélaton has shown by experimental research that wounds of the large vessels at the root of the lung, before they subdivide in the substance of the organ, are invariably fatal in from nine to ten minutes. What are the wounds, then, that give rise to the hemorrhages which, though very serious, would allow of sufficient survival to permit of surgical interference? According to Nélaton's investigations they are the arterial branches of the second and third magnitude which accompany the larger divisions of the bronchial tubes. Therefore, the most dangerous zone of hemorrhage is a comparatively circumscribed area in the neighborhood of the hilum; the zone rapidly diminishes in importance as the bronchi become smaller and lose their cartilaginous resistance. Once the conviction comes that the patient is bleeding to death, prompt and decisive action is called for, without losing time in abstract possibilities of spontaneous recovery. Hence the secret of success lies in the judgment of the practitioner who knows when to act, and not wait until the opportunity has passed.

Before undertaking a formidable operation, however, the patient's capacity of resistance to shock or further traumatism must be carefully weighed, and due preparation must be made for the serious contingencies that will certainly arise in the course of the operation. Fatal shock, uncontrollable hemorrhage, cardiac and respiratory failure, are dangerous incidents to surgical intervention. Matas believes that this intervention should be preceded by an intravenous hot saline infusion, as a means of preventing shock. Moreover, preparations for artificial respiration, either Fell-O'Dwyer's or other apparatus (a bellows with a tube inserted in the larynx), should be made. A cannula is first inserted into the vein, so that salt solution can be injected the moment it is required. An osteoplastic flap

can often be formed by using Schleich's solution. Before sectioning a rib upon the proximal side, the intercostal nerve must be thoroughly anesthetized. If, under the influence of the saline infusion, the pulse fails to improve, it is perfectly useless to continue with the operation, and all hope of operative relief must be abandoned, unless the cardiac failure is attributable to respiratory embarrassment from collapse of the lung, when inflation of the lung by means of the bellows should be tried in conjunction with the saline infusion. The customary hypodermic and stimulant treatment is always applicable in these cases.

It is interesting to note that Matas considers that saline infusion is an agent to be relied upon when all other remedies in the materia medica fail. He states that it is not only vivifying, but almost resurrecting.

As to the precise method of operating little need be said. The opening into the chest wall must be very free, or the bleeding vessel will never be found. If made in the lateral aspect of the thorax, it should suffice to expose the entire external surface of the lung, and the internal also, if the organ is lifted up and dragged out of the chest.

THE TREATMENT OF TABETIC ARTHROPATHIES.

ULLMANN (*Centralblatt f. Chirurgie*, No. 6, 1899), as the result of an extensive study of the literature of the subject, and of his own experience, has collected the following cases of resection: One at the shoulder-joint, with prompt healing; two of the hip, with thoroughly satisfactory results; five of the ankle, with three excellent results; nine of the knee, with one good result, four failures, and two deaths.

Thirteen amputations are recorded—eight primary, five secondary. Three primary amputations of the thigh were followed by two failures; in the third the result is not known. Out of five amputations of the leg, three were cured. The results of the five secondary amputations were unfavorable.

It is interesting to note that there were quite as many cures following resection as amputation. This, perhaps, is explained on the ground that secondary amputations were usually performed at a period when the patient was much exhausted by a persisting suppuration. It is only when the spinal disease is little advanced, and the patient is able to be up and about, that a resection should be performed. Under other circumstances, when the patient's life is threatened by suppuration, amputation is indicated. To avoid recurrence after resection, orthopedic appliances must be employed.

THROMBOSIS AND EMBOLISM OF THE MESENTERIC VESSELS.

FIRTH (*Bristol Medico-Chirurgical Journal*, March, 1899) sums up as follows the knowledge of mesenteric thrombosis and embolism to be gained from modern literature:

The usual result of occlusion of the mesenteric vessels is infarction of the intestine. This infarction may follow occlusion of either the arteries or veins, the effect generally being greater when the latter are obstructed, for in that event there is no hindrance to the supply of blood by the artery, but there is hindrance to the escape, and of necessity there is produced intense vascular engorgement and often extravasation of blood in the affected area. When the superior or inferior mesenteric artery is blocked, engorgement also follows, the flow of blood producing it in this case being from the anastomosing arteries and from the veins, the backward pressure of the latter coming into play when the *vis a tergo* is cut off. Litten's experimental ligation of the superior mesenteric artery near its origin, in dogs, always produced this result.

Though infarction of the intestine and mesentery, with gangrene in the severest and ulceration or simple congestion in the mildest cases, most frequently follows occlusion of the superior mesenteric artery, yet in two cases observed by Virchow and one by Tiedemann the artery was found obliterated without injury to the intestine. Chiene has also reported a case met with in the dissecting-room, in which there was occlusion of the three anterior branches of the abdominal aorta supplying the viscera. The vitality of the intestine had in no way been impaired, having been maintained by the dilatation of collateral blood-vessels. It appears from these cases that the intestine escapes injury from interference with normal channels of blood-supply if the interference is sufficiently gradually produced to allow of compensatory dilatation of anastomosing arteries.

Councilman remarks upon the probability that small emboli frequently enter the superior mesenteric artery, their entry being favored by the size of that artery and the angle it forms with the aorta; but that the

free anastomosis between its small branches prevents these small emboli impairing intestinal nutrition. He reports three cases of embolism of the superior artery which he had met with. One of these is particularly interesting, for clinically the symptoms were those of complete intestinal obstruction, with vomiting finally becoming stercoraceous, great abdominal pain, and tympanites. The patient, who was eighty-five years of age, died on the twelfth day of illness. The intestine presented a few small ecchymoses, but there was neither intense congestion nor at any place complete infarction. A thrombus attached to an atheromatous patch on the anterior wall of the aorta, just above the origin of the superior mesenteric artery, almost completely occluded the opening of that branch. He thinks it probable that the blood-supply through the obstructed vessel, though sufficient to maintain the vitality of the intestine, interfered with its innervation, leading to paralysis of the bowel and the attendant intestinal obstruction. In a second case, though the entire superior mesenteric artery was obstructed, there was only a beginning of infarction in a small area of the intestine.

Dr. Elliot has analyzed the records of twenty carefully reported cases of occlusion of the superior mesenteric artery, in which the abdominal symptoms were not overshadowed by those of heart disease or by coma. All the cases were rapidly fatal. Pain, often colicky, was the most prominent symptom, and occurred in nearly all. A very notable symptom was the presence of blood in the stools. This was recorded in thirteen cases. In three the blood was passed without feces. In six the hemorrhage was profuse. In three other cases neither feces nor flatus was passed. Hematemesis occurred in three. Blood is usually found in the intestines at the autopsy, even if not passed during life, and is also frequently found in the peritoneal cavity. In two cases there was a palpable swelling, which proved to be infarcted bowel; and in another a swelling was due to a collection of blood in the mesentery. Subnormal temperature and extreme pallor were noticed in several cases, due no doubt to hemorrhage and peritoneal shock. In nearly half the cases there was diarrhea. In some there was neither diarrhea nor other disturbance of the bowels. The source of the embolism is usually vegetations on the cardiac valves, or on atheromatous patches in the aorta.

Watson, analyzing eight cases of total occlusion of the main trunk of the superior mesenteric artery, finds that in one case there was entire absence of abdominal symptoms, and in two others they were very slight, though the infarction affected a large part of the intestines. On the other hand, in a case in which only a small portion of the intestine was in a state of infarct, abdominal pain was sudden and violent, and there was profuse bloody diarrhea. It is obvious, therefore, that from the clinical signs it is impossible to tell the extent or degree of the intestinal lesion.

It will have been noticed that one of the most characteristic symptoms mentioned above was bloody diarrhea. If there is evidence in other parts of the body producing, for example, gangrene of the feet, or hemiplegia, hemoptysis, and chest pain, or splenic or renal trouble, the diagnosis of the condition under discussion will be much facilitated; but this evidence is often wanting. Again, the presence of heart disease and atheromatous arteries will help in the diagnosis. Watson thinks it possible to diagnose about one-fourth of the cases.

The affection, perhaps, most closely resembles intussusception, as pointed out by Elliot. In both infarction of the intestine and intussusception there is often diarrhea and intestinal hemorrhage, and pain and vomiting. The hemorrhage is apt to be more profuse in the embolic affection, but has been recorded as the principal cause of death in both. In intussusception tympanites is rare in the early stages. In that affection, too, the patients are usually younger. According to Fitz, fifty-six per cent of the cases of intussusception are under the age of ten. The characteristics of a tumor if present would be an important guide to the diagnosis.

A few cases are recorded of embolism of the inferior mesenteric artery, but the symptoms do not sufficiently differ from those in which the superior artery is affected to permit of clinical differentiation. It has been said that the presence of fresh blood in the dejections, and the localization of the pain in the lower part of the abdomen, point to embolism of the inferior vessel.

Elliot has found fourteen reported cases of thrombosis of the superior mesenteric vein. They were even more rapidly fatal than those of embolism of the artery, nearly all having died on the second or third day with symptoms of intestinal obstruction. The symptoms of this affection are much the

same as those of embolism of the corresponding artery, with the exception that diarrhea has not been recorded as present in any of the cases. Blood was vomited or passed in large quantity by the bowel in half the cases. In five of the cases there was cirrhosis of the liver, and two were syphilitic. In two cases a volvulus was considered to be the result of the thrombosis.

It may, therefore, be said that acute abdominal symptoms, associated with the passage of blood and with portal obstruction from cirrhosis of the liver or other cause, would suggest the diagnosis of thrombosis of the mesenteric veins.

The prognosis in these affections of the mesenteric vessels is very bad, though, as mentioned above, there are records which show that patients have survived.

Elliot has only found in literature three cases which have been operated upon. He reports two additional cases of his own. In none was the diagnosis previously made; and four out of the five died unrelieved.

Laparotomy, and resection of the intestine if it be found to require it, is the only treatment that offers any prospect of success. Watson states that the records of a number of autopsies showed that one-sixth of the cases might have been relieved by such treatment. In the single successful operation for this condition on record, that of Elliot, four feet of intestine, almost gangrenous from infarction, was removed. The open ends of the intestine were sutured to the abdominal wound, and the artificial anus thus produced was subsequently closed by a second operation. The patient was a male, aged twenty-five, and the cause of the infarction was thrombosis of the mesenteric veins. Elliot's second case was one of thrombosis of a branch of the mesenteric artery. An artificial anus was made in the descending colon; but the patient died. At the autopsy four inches of the intestine was found gangrenous and perforated. In most cases the presence of heart disease, atheroma, or cirrhosis of the liver militates strongly against surgical success.

CYSTITIS OF CHILDREN TREATED BY UROTROPIN.

HEUBNER (quoted in *Centralblatt f. die Gesammte Therapie*, April, 1899) reports excellent results from the use of urotropin in cases of cystitis in children. In two instances this drug was followed by cure. Once in a ten-year-old boy, suffering from gonorrheal cystitis, which had lasted for several years without yielding to other forms of treatment, urotropin was given for about seven weeks, in doses of about three grains five times daily.

A girl, two and a half years old, had suffered from cystitis for eight months. She was cured in three months by giving her, five times a day, one and a half grains of urotropin. This treatment was continued for three months.

In one child, aged seven, the medicament seemed futile. Operation showed pyelitis (hydronephrotic), because of a congenital stenosis of the ureter.

The drug should be kept up for some time after apparent cure and without intermission. It seems to be of little service when the urine is acid. The daily dose varies between eight and thirty grains.

ENTEROPLASTIC OPERATION TO OVERCOME OR PREVENT STENOSIS, WITH ESPECIAL REFERENCE TO THE SPUR IN PRETERNATURAL ANUS.

FENGER (*American Journal of the Medical Sciences*, April, 1899) states that the principle of overcoming a stenosis of a canal by transverse union of a longitudinal incision is applicable in any portion of the intestinal tract below the duodenum wherever the mechanical conditions will permit.

The longitudinal incision or opening should be made in the middle of the convex surface —that is, equidistant from the two sides of the mesentery, so as not to interrupt blood-supply by the division of large vessels in the intestinal wall. Free mobility of the loops of intestine and intact peritoneal covering are desirable conditions, but the latter is not absolutely necessary. In places where the intestine has no mesentery and where there is a limit to the infolding or bringing into apposition of the convex surface or the surface of the intestine opposite the mesentery, as the cæcum, extraperitoneal border of the rectum, or flexures of the colon, there is a limit to the length of the longitudinal incision. It is evident that the length of the longitudinal wound should not be unnecessarily great.

When there is no mesentery, and consequently only slight mobility, for folding in or apposition of the convex free surface of the intestine, or where the mobility is diminished or lost by diffuse inseparable adhesions, there

is, of course, a limitation to the application of this principle.

This plastic operation, when applied to resection and circular suture, will enable us to avoid narrowing of the intestine by folding in of its wall at the place of suture. If, for the sake of additional safety, it is deemed desirable to apply a second row of seromuscular sutures at a distance of one-half centimeter from the first row, the advantage of having a larger amount of serous surface in contact is counterbalanced by the increase in size of the circular fold. The narrowing effect of a large fold can be overcome entirely by the plastic operation, because we can make the longitudinal division long enough to secure a circumference of any size desired.

The same principle is applicable when we wish to unite an intestine of small caliber end to end with one of large caliber. By longitudinal division of the smaller intestinal tube the line of union is easily made to correspond to that of the larger tube. If the lumen of the larger intestine is not deemed sufficiently wide to permit of so much folding in as is required, a longitudinal division is also here resorted to, until at last as large a line of union as we deem desirable is secured.

In artificial anus, whether this be the result of a premeditated operation or of an accident, where the mucosa of the intestine is finally united to the skin, it is commonly observed that the so-called spur forms a more or less complete obstruction to fecal passage from the proximal into the distal portion of the intestine. The spur, so to speak, leads the bowel contents from the bowel out through the opening in the skin. The distal portion becomes small and retracted from non-use.

The spur is formed by a semicircular fold or group of folds located opposite to the opening through the abdominal wall at the place of the bend of the opened intestine. This semicircular fold may increase so as to extend entirely around the lumen of the intestine, thus becoming a circular fold, and is then located at the end of the proximal portion of the intestine close to the opening in the skin, through which it may protrude as a prolapse of the mucosa or wall of the proximal bowel. When this spur is well developed it may form, even when the intestine is loosened from the abdominal wall, an impediment to free fecal passage that frustrates simple transverse or longitudinal suture of the intestinal opening, and consequently necessitates resection of the loop containing the spur.

As resection with subsequent circular suture is as yet an operation of some gravity, it would be an advantage to avoid resection and still overcome the stenosis and the influence of the spur with a more simple operation.

A patient presented himself with a fistula in the right inguinal region which would admit the little finger. This fistula was circumcised about an inch and a half from its border, through the skin, subcutaneous tissue, and abdominal muscles, down to the transversalis fascia; this circular flap, like a collar, was loosened and closed tightly by a continuous silk suture, so that none of the intestinal contents could pass out. The abdomen was then disinfected, and clean covers were put on the table and the patient. The peritoneal cavity was opened one inch medial to and above the fistula. The isolation of the loop with the fistula was relatively easy. It was found to be a loop of small intestine. It was freed from adhesions, pulled up out of the wound, and surrounded by gauze. The loop of gut which it occupied was emptied of its fecal contents and ligated by means of gauze strips, two to three inches on each side of the fistula. The abdominal wall-flap was then cut off from the border of the fistula. It was evident that simple union of the fistulous opening either in the transverse or in the longitudinal direction would not do away with the stenosis caused by a ring-shaped valve of the mucosa, consequently could not remove the impediment to the passage of feces at this point. The effect of this spur was overcome by a plastic operation performed as follows:

1. A longitudinal incision at the convex border of the intestine one inch in length in the proximal end of the intestine through the tongue-shaped valve, up into the normal intestinal wall above it.

2. A longitudinal incision, one inch long, into the distal or narrower portion of the intestine below the spur, thus making a longitudinal wound two inches in length on the convex border of the intestine. As the original fistulous opening was two centimeters in diameter, the wound would be about three inches in total length. Upon making the incision at the upper end of the wound Fenger saw a Peyer's patch.

The spur formed a circular valve of two or three parallel folds of mucosa, half an inch broad, most pronounced on the mesenteric side, extending around the entire circumfer-

ence of the intestine, but smaller on the convex border.

3. Transverse union of this longitudinal wound: (*a*) Suture united the upper and lower corners and was left long for traction, dividing the wound into two transverse halves with the suture in the middle; (*b*) a continuous silk suture through all the layers of the intestine; (*c*) a continuous serosa-muscularis suture, one centimeter outside of the former; (*d*) a second continuous serosa-muscularis suture to bury the former.

4. Disinfection of the sutured loop with 1:1000 sublimate solution, and removal of the gauze ligatures around the loop of intestine.

5. Removal of the sponges and examination of the abdomen for hemorrhage.

6. Step sutures of the abdominal wall.

7. Gauze drain down to the appendix and over to the sutured loop of the ileum.

8. Injection of two quarts of physiological saline solution into the rectum.

The operation lasted three and a half hours. At its close the patient's pulse was good; no shock. The patient recovered.

BILATERAL MAMMARY CANCER.

ALBERT (*Wien. Med. Woch.*, Jan. 7, 1899) has met with four cases of bilateral mammary cancer among several hundred cases of that disease. In two he operated. The first patient was thirty-seven; she underwent amputation of a cancerous left breast, not ulcerated, with clearing of the axilla. Both the tumor and the axillary glands proved carcinomatous on microscopical examination. As an open wound was left, epidermis was grafted, on Thiersch's principle, from the patient's left thigh. Five months after the operation a mass as big as a walnut was removed from the cicatrix, but it extended into the deepest layers of the soft parts of the thoracic walls. When the wound was healing a tumor developed in the right breast, and was removed six weeks after the second operation; the axilla was cleared. About three weeks later a deposit was detected below the left axilla. Operation was impossible, as it clearly extended into the thorax. The patient died with symptoms of pneumonia just ten months after the removal of the left breast.

The second patient was fifty. A small cancerous tumor developed in the outer upper quarter of the left breast; the skin adhered, yet the tumor had hardly been observed over a month. The breast was removed, the axilla cleared. One year and a half later a small cancer developed in the center of the right breast, and the gland was removed, the axilla being also cleared. The patient recovered quickly, but no after-history is given.

In two cases no operation was performed. The patient in one case was a very big woman; her breasts stood prominently forward, owing to infiltrating cancer; the skin was stretched, and bore lenticular malignant deposits. Otherwise the case resembled lymphosarcomatosis of the breast.

The last patient was thirty-six. She had allowed a cancer of the right breast to go on for two years, and for five months the left had been involved; the disease seemed most advanced in the gland last attacked; the whole breast formed a tough mass fixed to the pectoralis muscle. Cachexia had not set in.

HANSY (*Wien. Med. Woch.*, Feb. 11, 1899) reports a case in a postman, aged sixty-one, adding two photographs. The patient applied at hospital for a large ulcerated cancer of the left nipple, which had existed about a year, with corresponding disease on the right side; the latter had grown with great rapidity, and ulcerated extensively. Disease was clearly advanced, the growths adhered to deeper structures, especially on the left side, and both axillæ contained masses of hard but painless glands. On September 6, 1897, the right mamma and the axillary glands on both sides were removed; the ulcer representing the remains of the left gland was scraped out and cauterized. The patient returned to his duty as postman, but died on May 1, 1898, of cancerous marasmus, with symptoms of internal metastases.

CYST OF THE PANCREAS TREATED BY INCISION AND DRAINAGE THROUGH THE ANTERIOR ABDOMINAL WALL.

POLLARD (*British Medical Journal*, March 11, 1899) has treated three cases of pancreatic cyst by drainage through an anterior abdominal wound. It has been objected to this method, on the one hand, that the adhesion which must of necessity be formed between the anterior and posterior walls of the abdomen might be injurious, and on the other hand, that possibly simple drainage might not effect a permanent cure of the disease. The author has delayed publication

of his cases in order that, in regard to them, time might show the validity or otherwise of these two objections. It is now nearly five years since the first case was operated upon; the second case was operated upon three years ago, and the third case two years ago.

The first case, thirty-four years old, was, in the early part of 1894, awakened one night by a sharp pain in his epigastrium, which caused vomiting. This persisted two days, when the vomiting ceased, and the severe pain was replaced by a burning sensation in the epigastrium, whence it radiated to the throat. The pain, associated with occasional attacks of vomiting, had persisted since. During the last six years the patient had suffered from some half-dozen similar, though less severe, attacks. His temperature ranged about 100°, and the upper part of the abdomen and the lower part of the chest on the left side were bulged, owing to the presence of a mass which could be felt to occupy the whole of the left hypochondriac region and a large portion of the epigastro-umbilical and left lumbar regions. This mass moved slightly on respiration.

The abdomen was opened by a six-inch incision in the left linea semilunaris. The cyst, which lay behind the stomach and transverse colon, was opened in the interval between the stomach and transverse colon. The great omentum was divided transversely, and the lesser peritoneal cavity was opened. A strip of gauze was packed into the wound between the stomach and the transverse colon, and the abdominal wound above and below this spot was closed. A dressing was then applied. On the sixth day the gauze plug was removed, and about three pints of fluid was withdrawn by means of a hydrocele trocar. Two days later an anesthetic was given, and after the removal of two pints of fluid by tapping the cyst was freely opened. The dense fibrous wall bled freely, therefore packing with cyanide gauze was practiced. On the following day this was removed, and a large drainage-tube was inserted. Six weeks later the man was still wearing a tube four inches long. This was continued for upwards of a year. The tube was then removed, and in less than a week the sinus closed permanently. Since the operation the patient has had occasional attacks of burning pain in the epigastrium—the last one nearly two years ago. The general health has been greatly improved. A hernia formed at the seat of abdominal incision.

The second case began by general malaise, which was followed in a few days by shortness of breath. During the night he was awakened by severe abdominal pain, which was followed by vomiting; these attacks recurred. In about two weeks a tumor was detected. Upon admission to the hospital a large mass could be felt occupying the left upper quadrant of the abdominal cavity; it did not fill the loin, nor cause bulging. On deep percussion there was slight resonance. When air was injected into the rectum a well-marked tympanitic note was obtainable in the left flank and at the upper part of the abdomen. This resonant area was behind the tumor. A four-inch incision was made, a little to the left of the middle line, over the most prominent part of the tumor. The great omentum was torn through, the cyst wall was exposed and was punctured with a hollow needle, and after sufficient fluid had been withdrawn to render the cyst walls lax, an incision about one inch long was made into the cyst, and its contents, about three pints, was withdrawn. The abdominal wound was sutured at each end, and the margins of the incision into the cyst were secured by several stitches to the margins of the central portion of the abdominal wound. The tube was removed in about four weeks, and the patient recovered completely. A small ventral hernia formed at the seat of the abdominal incision.

The third patient, aged thirty-six, first began to suffer with pain in his back; this was followed by sudden pain in the left hypochondrium, which spread up into his chest and nearly choked him. He kept his bed for a month, during which time the severe pain subsided, but the pain in his back continued. The tumor was noticed about the time that he began to suffer from back pain. The tumor occupied the left loin, but did not fill nor bulge it. The growth moved a little with respiration and was also slightly movable from side to side. It felt distinctly elastic. The operation was the same as in the preceding case. In about eight weeks the resulting sinus was closed. A hernia formed at the site of the drainage.

In none of these cases was there a history of pancreatic injury. In all the onset was characterized by severe epigastric pain, and the urine was free from sugar. The stools appeared natural, and there was no excess of undigested fat. In each case the fluid removed at the operation contained the three digestive ferments of pancreatic juice, but after they had been drained for a few days the discharge from the cysts was found

to have lost its digestive powers over starch and fibrin.

Pancreatic cysts have come forward in at least three different situations, namely, above the stomach, opposite the small omentum; between the stomach and the transverse colon, opposite the great omentum; and below the transverse colon, opposite the descending layer of the transverse mesocolon. The second of these positions is the most common.

The removal of the cysts has been recommended. The operation has been performed successfully in some cases, but in several there has been a fatal termination. Since it is now clear that drainage alone will suffice for the cure of these cysts, removal is no longer a justifiable operation. The advisability of draining these cysts through a posterior incision has been urged. If the lumbar operation could be performed safely without making an anterior incision, this would be the method to be preferred, but in many cases the anterior incision would be required to verify the diagnosis, and possibly to determine the exact spot at which the cyst could be best reached by the posterior incision. It must not be forgotten that important structures and large blood-vessels may be encountered in attempting to reach the cyst through an incision below the last rib, and that owing to want of space it might be difficult to recognize and avoid them. The only objection to anterior drainage which has become apparent is the occurrence of hernia at the spot where the presence of the tube prevented primary union in the abdominal wound.

OINTMENT FOR HEMORRHOIDS.

NEHIGAN (*Der Frauenartz*, Feb. 20, 1899) prescribes the following ointment for hemorrhoids:

Compound tincture of camphor, 1 drachm;
Camphor, 1 drachm;
Belladonna ointment, 15 drachms.
To be applied directly to the painful part.

TREATMENT OF FRACTURES BY MASSAGE AND MOVEMENT.

MILHIET (*Journal des Praticiens*, No. 11, 1899), following in this the teaching of Forgue and Reclus, and indeed the teaching of nearly all progressive and experienced surgeons, urges the necessity of recognizing not only in exceptional cases, but in nearly all instances of fractures, the powerful healing help which is offered by a wisely directed massage and movement. In fracture the solution of continuity is not the only lesion. There is always an effusion involving the surrounding soft parts. This effusion, if not quickly absorbed, becomes organized into plastic lymph, which may seriously cripple the functions of joints and tendons, and may contribute to atrophy and degeneration of the muscles, vessels, and nerves. Massage is the most powerful means we possess of causing rapid absorption of this effusion, and of preventing the atrophy and degeneration which often persists for many months after a fracture has become completely consolidated, and so maintains a disability which should not exist. Even when the skin is blistered or broken, and when veins are dilated, massage, if practiced in an aseptic manner, is applicable. It is only when aneurism is present, or when the fracture is dependent upon malignant infiltration, that this method of treatment is positively contraindicated.

As a lubricant, oil, borated or camphorated vaselin, potato starch, talc powder, or rice powder, may be used.

Massage should be practiced from the very beginning, always in the region of the fracture, usually directly over it. The rubbing should be in the direction of the venous circulation, and should begin with slight stroking. A preliminary application of compresses wrung out of hot water is often advisable, because of its soothing effect upon the pain, and its stimulating influence on the local circulation. After stroking for some time the pain is usually greatly lessened; then deeper motions may be practiced. Forgue and Reclus advise two rubbings a day, each of a quarter of an hour's duration at first; later the treatment may be lengthened. After having finished massage, the neighboring articulations should be carefully moved. Thus the troublesome stiffness which commonly follows fractures is avoided.

Certain fractures show no tendency towards displacement; for instance, a Colles' fracture which has been well reduced. Under such circumstances a fixation splint should be omitted entirely, and massage should be practiced as above described. When the fracture is attended with very slight mobility and displacement, a fixation splint is kept on for as little time as possible. When fractures are attended by great mobility and displacement, such as those of the femur and humerus, for instance, the immobilization is usually necessary for a time; this treatment should be made as brief as

possible, however, and should be supplemented by massage and movement of the joints nearest to the fracture.

THE TREATMENT OF SYPHILIS.

TAYLOR (*New York Medical Journal*, April 8, 1899) again enters his protest against the alluring routine treatment of syphilis, which has become all too popular in our system of medicine. He states that before considering the subject of treatment proper, it is very important to call attention to certain vicious therapeutic methods which still prevail to a certain extent, but which he thinks are slowly passing into desuetude.

About twenty years ago a most unfortunate reaction took place in the method of treating syphilis. Prior to that time it may be confessed that the method of using mercury was in general rather too lavish in its doses, and that in some cases harm was done. But the old-time Ricord plan of treatment (in vogue prior to 1870), in which an active mercurialization for six months, supplemented with three months' liberal dosage with the iodide of potassium, was, with all its drawbacks and imperfections (chiefly salivation and intestinal derangement), far more beneficial than the attenuated, emasculated, narrow-gauge, stencil-plate methods of treating syphilis which then were adopted in France, England, and America. The reaction from the vigorous use of mercury was too radical, and we complacently accepted a method of treatment built up on theories and fantastic reasoning, which has proved to be one of the most calamitous events in medical history. We hear little to-day in America of the ingenious and sophistical reasoning of the accomplished author of the interrupted treatment of syphilis, and there are few who wrestle with the labyrinthine problems of dose arithmetic, with its "full dose," "tonic dose," and "reserve dose," in administering mercury according to the tenets of the preposterous tonic treatment. But although these ingenious theories are either entirely forgotten or unknown to the present generation, the trail of the serpent is still visible in the routine methods followed by many in blindly relying upon the stomach ingestion of insoluble preparations of mercury in small doses. Happily for the human race, this slip-shod, happy-go-lucky method of treatment is less and less followed every year.

Chemical examinations have shown (and any one can ascertain the facts for himself) that when mercury does not produce gastro-intestinal derangement, a goodly amount of the drug is absorbed, as proven by its excretion in the urine and feces. When matters thus progress favorably the effect upon the syphilitic condition is beneficial, but as time goes on chemical examinations show that the quantity of mercury assimilated grows less and less, and that though taken by the mouth, it is not absorbed, and that its therapeutic effect is then lost.

Clinical observation has clearly shown that for a time, in the early weeks of syphilis, a decidedly beneficial effect is produced upon the disease by mercury given by the stomach, but that in a few weeks the therapeutic action begins to wane and soon the remedy becomes inert. It is this temporary action of mercury given by the stomach, in long-continued and interrupted courses, which has brought to thousands of patients great trouble and suffering, misery, disaster, and death. They took the remedy long after it ceased to have any therapeutic effect, and the unextinguished infection kept right on its course of invasion and destruction.

When shall active medication begin? The best results are always attained when treatment is commenced just as soon as the secondary manifestations show themselves.

The date (as a general rule) at which the treatment of syphilis should begin is that at which the disease culminates in the general infection of the economy—namely, just as soon as the general rash appears, together with the other manifold symptoms of the secondary period.

Too much stress certainly cannot be laid upon the fact that in the early secondary stage there are certain conditions favorable to an active treatment—namely, a system virgin to mercurials and a greater susceptibility of the lesions to the action of mercury. This, then, is the most favorable time for efficient treatment, and it is the most critical one in the life of the syphilitic, for if the disease is attacked then its backbone may be broken.

It is always well to begin medication in a manner that will not annoy, disgust, or discourage the patient, who is usually in a rather unhappy frame of mind at the thought that he is syphilitic and that he has quite a long period of treatment before him. Therefore, it is not well to be precipitate in the institution of an inunction treatment. Since in these early days mercury by the mouth is generally well borne, is effective in result,

and is not distasteful to the patient, he may at once be put upon pills of the protoiodide of mercury, or of tannate of mercury, or of the thymol acetate of the same. In general, half-grain doses of these drugs may be given three times a day, and it will be rarely necessary to increase the daily amount taken beyond two or three grains of any of them.

It is important that this initial course should be active and rather prolonged, and in attaining this end the case must be carefully handled and watched. As a rule, the physician can form a correct estimate as to the probable effect of mercury upon his patient within a week or ten days. Having put the stomach and intestinal canal in normal condition, and the mouth and throat having received proper attention, the dose of the mercurial may be increased within a few days to the quantity which acts vigorously on the lesions and does not disturb the well-being of the patient.

We must at this time assure ourselves that the indurated nodule has wholly disappeared, that the lymphatic engorgement shows evident signs of involution, and that the rash has faded or is fading. The throat and mouth must be inspected very often, and any red patches or ulcerative lesions must be actively treated. It is always a good rule as the rash is declining to discontinue the pills and to give the patient one or two courses of mercurial inunctions, by which the whole surface of the body will be acted upon by mercury. In this way any infectious cells which may be left over from a local or general rash may be acted upon and destroyed. Even while the patient is taking pills mercurial ointment may be used locally upon the lymphatic ganglia, due care being taken that an overdose is not given. In like manner papular and pustular lesions in hairy parts should be treated locally.

By thus at an early date inducing the patient to use inunctions of mercurial ointment as an adjuvant treatment, it is seldom difficult, particularly with intelligent persons, to gain their consent to follow a full inunction treatment, and then the use of the pills may be discontinued. In proportion as the case progresses well the fear of the disease by the patient is dissipated and his morale improves. At this time the assurance on the part of the physician that the patient will be very much more benefited by systematic inunction treatment generally results in the patient's consent.

To be effective, the mercurial inunctions should be thoroughly administered over the whole body in regional parts, using about sixty grains of mercurial ointment. In some cases the inunctions may be administered on consecutive days; in others there may be intervals of one or two days between them. Usually after fifteen or twenty inunctions a period of repose may be allowed for a week or two, since after such a course fully three or four weeks elapse before mercury ceases to be eliminated in the urine and feces.

Either synchronously, or in the intervals of disuse of the mercurial frictions, we should give the iodide in goodly doses—ten, twenty, or thirty grains three times a day, or even in larger doses.

Then, again, it may be necessary, for various reasons, to suspend the inunction treatment for a long or short time, and in this event use a strong mixed treatment, as follows:

℞ Hyd. biniod., gr. ij to iv;
Potass. iodid., ʒ ss to ʒ j;
Tinct. cinch. co., ʒ iij;
Aquæ, ℥ j.
M. ʒ j ter in die ex aqua ℥ j.

In this way we can push along until six months have elapsed from the date of the onset of the secondary period of syphilis, during which time the patient has taken medicine more than five months. In most cases, if this carefully regulated and most effective treatment has been followed, an examination of the patient will show that he presents no evidence of the disease, and that his condition is most satisfactory. Then the patient may have a respite from medicine for two or three weeks. At the expiration of this time the treatment must be kept up for three months longer, and it must consist of alternations of the inunction treatment and the dosage with a mild or strong mixed treatment. As a cure progresses the intervals between inunctions may be longer, and the mixed-treatment dosage may be less strong.

After the lapse of a year, in many cases, the necessity for treatment may not be apparent, and most of these patients say that they think they are perfectly well. It is better, however, not to take any chances, and during the second year, and perhaps a little longer, a few courses of inunctions and of the mixed treatment may be taken.

In the carrying out of this methodical general treatment of syphilis in the second year of the disease, the periods of dosage may on an average be stated at two to three months, with intervals of rest of a month

or six weeks. In this way about eight months is occupied by actual medication. In most cases at the end of the second year of thorough treatment patients may be pronounced cured, provided they have not for many months shown evidence of the disease, that their lymphatic system appears healthy, and that their general health and nutrition are good.

BANGS (*New York Medical Journal*, April 8, 1899) holds that if it is admitted by the majority of syphilographers that histologically all of the secondary manifestations of syphilis are found to be composed of the same cell accumulation, with perhaps the development of a few connective tissue fibers, as compose the initial lesion itself, why should it be argued that there is "nothing to treat until generalization has manifested itself?" Again, if specific treatment of the initial lesions be warranted in particular cases, why is it not warranted—and indeed required—in all cases?

If, then, an initial lesion is present, and if specific treatment is good for it, why not begin at once the administration of that remedy which we know hastens the involution of those manifestations which belong to the so-called generalized or secondary stage? The effects of syphilis are due not only to the mechanical interference with the function of the part or parts where these exudates take place, but also to a systemic poisoning due to the elaboration and circulation of a toxin or ptomaine produced by the microbic body itself. If the vital forces of the individual are maintained at what might be termed a par of health, and all his functions kept at the highest point of activity, his economy is better able to take care of the toxins, while by the judicious administration of mercury his body is enabled to dispose of the granulomata or cell accumulations in their varying grades of intensity. This implies constant watchfulness, the exercise of careful, discriminating judgment, and in some cases ingenuity, on the part of the doctor, and on the part of the patient obedience, confidence, and patience.

As to methods of administration, if the remedy is well borne when taken by the mouth, this is the preferable mode. Only so much should be administered daily as can be digested easily and freely without interfering with stomach and intestinal digestion, but up to the point of the drug's physiological action. In the majority of cases a habituation to the remedy ensues, and therefore it is well to make intermissions in the treatment from time to time; always, however, maintaining the hygienic and dietetic *status quo* of the person. It should be observed that many persons do not bear the internal administration of mercury up to the point that may be necessary to act vigorously upon their lesions. In such cases the method of inunction should be resorted to at once. This is less depressing than the vaporization method, is not at all painful, and in spite of the staining of the skin is less disagreeable than the hypodermic method, and is often brilliant in its results.

It is a good custom during the course of the treatment of syphilis to intermit the internal administration of the drug, even if it is well borne by the stomach, and substitute inunctions, always keeping in view the general principles upon which the drug is administered.

In certain malignant forms, where the tissues of the individual seem to be rapidly breaking down as a result of the disease, hypodermic injections of the bichloride may be given with very prompt effect. They should be repeated with care, bearing in mind the fact that death has ensued from this method of using the drug. With ordinary precautions, however, and choosing the buttocks for the site of the injections, there is but little danger.

Even in cases of malignant syphilis the effect of the injections should be watched very closely, and every possible accessory measure taken to increase the general well-being of the patient.

One of the most important guides to indicate the period during which treatment should be carried on is the condition of the glands throughout the body, particularly the epitrochlear and those which are not usually found enlarged in the more common dyscrasias. So long as these glands remain enlarged, it is one indication at least that treatment should not be discontinued. Enlargement of the glands alone is not positive evidence of syphilis, but if the practitioner has followed his patient from the onset of the disease, and has appreciated that these enlargements have grown smaller or disappeared entirely under treatment, it is confirmatory evidence that they are syphilitic in nature. If the individual gives a suspicious history and has glandular enlargements, it is well to give him the benefit of the doubt and administer mercury; but at the end of three months, say, if no material change has taken

place in the size of the glands, it may be reasonably concluded that connective tissue changes have occurred in them to such a degree that they are now permanently enlarged.

The duration of the treatment, irrespective of the state of the glandular system, will depend somewhat upon the individual and the continued activity of his disease. But experience teaches that long-continued and gentle treatment for at least three years (some authorities say five, and one has lately urged seven) affords the patient protection from the effects of the disease later in life.

NERVE TRANSPLANTATION.

PETERSON (*American Journal of the Medical Sciences*, April, 1899), from a study of twenty reported cases of nerve transplantation, finds that the median nerve alone was operated upon in seven cases, the ulnar alone in three cases, and the median and ulnar together in two cases. The musculospiral was operated upon in seven cases, and the sciatic in one case.

The injuries to the nerves necessitating transplantation in ten cases were due to removal of tumors involving the nerves; incised wounds were responsible for four cases; injury following operation for necrosis twice; while gunshot wound, operation for gluteal abscess, ununited fracture, and simple fracture were responsible for one case each.

There were eight primary and twelve secondary operations. The time elapsing from date of injury to time of operation varied from forty-eight hours to one and one-quarter years. Eight out of the twelve cases of secondary operation, or two-thirds, showed improvement in sensation or motion, while only four out of the eight cases of primary operation, or one-half, showed signs of improvement. However, two of the eight cases were observed only ten and six days respectively.

The distance separating the central and peripheral fragments varied from three to ten centimeters. As far as can be judged, the distance did not seem to affect ultimate results. In nine cases the transplanted segments were from sciatics of dogs, in five from recently amputated limbs, in three from the sciatics of rabbits, and one each from the spinal cord of a rabbit and the sciatic of a kitten. In one case the excised nerve was itself implanted.

In nine cases catgut was used to unite transplanted segments to central and peripheral ends of excised nerves, in three silk, and once kangaroo tendon was employed. In seven cases no mention is made of the suture material.

Strictly speaking, no case can be said to have recovered entirely, if by that be meant a complete restoration of sensation, together with a return of the muscles to their former size and power. The nearest approach to this condition occurs in the case longest under observation, where at the end of six years sensation had entirely returned, and the only remaining weak muscle was the abductor of the thumb. In three cases there was practical recovery of sensation and motion, so that the hand was entirely useful. In two of these both median and ulnar nerves were operated upon.

There was complete return of sensation recorded in four cases. In three cases there was nearly complete return of sensation. Improvement in sensation was recorded in four cases, while improvement in muscular power is noted also in four cases.

There was improvement in either muscular power or sensation in twelve cases, while in six cases there was no improvement in either sensation or motion.

The shortest time any case was under observation was six days; the longest six years. Of the five cases under observation one year or more, three made nearly complete recoveries in both sensation and motion.

The average time in which sensation first appeared after the operation was about ten days, while the average time for the first appearance of motion was about two and a half months.

The general conclusions deduced from this study are as follows:

1. Transplantation of a peripheral nerve segment to bridge over a gap between the two ends of a resected nerve is a legitimate surgical procedure.

2. Under favorable conditions at least partial and at times complete restoration of sensation and motion may be expected to follow the operation.

3. Regeneration of the degenerated peripheral end is due to down-growths from the axis-cylinders of the central end.

4. From the slowness of this process the longer the time after operation the more favorable will be the results.

5. Sensation may return very early after operation, and as a rule precedes return of motion.

6. This rapid return of sensation is not due to down-growth of axis-cylinders or to conductivity of the transplanted fragment, but must be explained by collateral nerve supply.

7. In many cases very early return of motion after transplantation may be due to vicarious movements of other muscles than those formerly paralyzed, and not to a regeneration of the latter's nerve supply.

Reviews.

TWENTIETH CENTURY PRACTICE. An International Encyclopædia of Modern Medical Science. Edited by Thomas L. Stedman, M.D. In Twenty Volumes. Volume XVI.
New York: William Wood & Company, 1899.

This volume, which we have gone over pretty carefully, is perhaps the most interesting of the series. It deals with the subjects of Croupous Pneumonia, Cerebrospinal Meningitis, Dysentery, Yaws, Inflammation, Erysipelas, Simple Continued Fever, Relapsing Fever, and Typhoid fever.

In the opening article upon Croupous Pneumonia, by Dr. Andrew H. Smith, of New York, we are told that it is "an acute disease in which a specific parasite invades the air cells of one or more pulmonary lobes, where it grows in the fibrinous medium exuded from the functional capillaries and generates a toxin which infects the system at large."

Surely this definition does not admit the fact, which we believe is generally recognized, that the microorganism of pneumonia is capable of infecting the entire system, and we are somewhat in doubt as to what is meant by the term "functional capillaries." In that portion of the article which deals with the treatment of pneumonia, Dr. Smith states that as a heart stimulant in cases of circulatory failure with relaxed blood-vessels, strychnine takes the foremost rank, and he believes that the remedy may be pushed to the point of producing muscular twitching. We have already asserted our belief a number of times in the editorial columns of the THERAPEUTIC GAZETTE that the *continuous* use of strychnine in large doses is disadvantageous, and that it is to be used rather as a whip in cases of sudden collapse than as a constant stimulant, since it simply acts by nervous irritation. In connection with the use of digitalis, we regret to find that Dr. Smith is not very favorable to its employment—indeed, he speaks very strongly against its use, unless at the same time an arterial dilator is employed. This we regret, not because we do not believe that in many instances nitroglycerin should be combined with digitalis, but because it seems to us to be a sweeping decision against a drug which undoubtedly can be used in many cases with very good results. What Dr. Smith says of digitalis will have a tendency to prevent physicians from employing it in any case, when they should employ it in some and not in others.

In quoting Dr. Mays' statistics concerning the value of cold in the treatment of pneumonia, Dr. Smith evidently ignores the fact, also ignored by Dr. Mays, that in these statistics there is no differentiation between lobular pneumonia and lobar pneumonia, and therefore they cannot be considered as having great bearing upon the point at issue. In his *résumé* of the treatment of this disease, Dr. Smith tells us that the treatment should consist in an attack upon the pneumococcus through the medium of the blood with the object of causing the exudate when it escapes into the air-cells to be impregnated with the substances which will unfit it to serve as a culture medium. We confess that we have not found anything in medical literature or in practice up to the present time which in the slightest degree carries out this much to be desired effect.

In Dr. Sodré's article upon Dysentery, we are told that of all drugs recommended in the treatment of this disease that which has given the best and surest result is undoubtedly ipecacuanha. While the majority of the profession some years ago were in accord with Dr. Smith in this belief, we are inclined to believe that in the majority of cases of dysentery this method of treatment is not now commonly employed, having been supplanted chiefly by the aromatic sulphuric acid and magnesium sulphate treatment.

We regret that Dr. Kiliani in his article upon Erysipelas does not mention the use of ichthyol locally in the treatment of this disease. Surely, of all the local applications which have been employed, this is the most efficacious. Neither do we find any mention in this article of the employment of tincture of the chloride of iron, which certainly is receiving professional indorsement. Indeed, the whole question of the internal treatment of this disease is decidedly ignored.

In the article on Simple Continued Fever we find that amongst the synonyms are given sun-fever, gastric fever, catarrhal fever, mountain fever, and abortive fever, all of which

goes to illustrate the fact that the term "simple continued fever" is in many instances a cloak to our ignorance of the real condition which is present. We think that the majority of medical leaders at the present time consider that gastric fever, at least as it occurs in children, is in a great majority of cases due either to acute catarrh of the stomach or to typhoid infection; indeed, gastric fever is a term which is commonly employed to indicate a type of typhoid fever in which the gastric symptoms are particularly marked. So, too, abortive fever is a term which is sometimes employed to indicate cases of typhoid which run an unusually short course. Sun-fever is probably due to disorder of the nervous heat mechanism by exposure to the sun's rays, and it has been definitely proved that mountain fever is a true typhoid infection slightly modified by the physical surroundings of the patient.

The article on Typhoid Fever is written in two parts: the first by Dr. Thacher, who deals with the etiology and general pathology of the disease, and the second by Dr. Brannan, who deals with the symptomatology and treatment.

We are sorry that Dr. Brannan recommends meat broths, as we believe that all animal broths when given to typhoid fever patients afford excellent culture media for the development of the bacillus of Eberth, and also for the numerous other pathological microorganisms which are found in malignant activity in the alimentary canal during the course of this disease; for truly typhoid fever is associated with multiple infection. Neither do we think the description which is given as to the manner in which the cold pack is to be used is correct. Surely the patient who is first wrapped in a cold sheet and then wrapped in a large blanket is speedily placed in a hot moist pack, owing to the fact that the blanket retains the heat of his body, and evaporation, the most important factor in reducing temperature, is prevented.

Dr. Brannan, in mentioning Dr. Woodbridge's treatment of typhoid fever by the administration of antiseptic and purgative substances, quotes certain passages in Dr. Woodbridge's writings which it seems to us are antagonistic to general professional opinion, as, for example, that death is a really unnecessary consequence of typhoid fever, and that every case in which the above treatment is instituted sufficiently early in the course of the disease can be aborted. This is certainly a very dangerous statement and does not agree with our knowledge of the natural history of the disease; and while Dr. Brannan does not quote it with his indorsement, we notice that he is in favor of the so-called eliminative and purgative treatment. The statistics which he gives, however, in regard to the Woodbridge, Thistle, and other methods in typhoid fever, are truly inadequate to determine the value of any method of treatment. Those who have had a large experience with this disease know full well that it is by no means an uncommon occurrence for several hundred cases to pass through typhoid fever and for the mortality to be exceedingly low, and then the next hundred cases will have a very high mortality, the variation depending largely upon the susceptibility of the patient and the virulence of the infection. Thus Mason has recorded five different series, aggregating 242 cases, with five deaths, or a mortality of about two per cent; but the total mortality of 676 cases was 10.4 per cent. We are sorry that Dr. Brannan has emphasized this method of treatment, and has not emphasized other methods which we think are more valuable. We also regret that practically nothing is said about the use of alcohol in the treatment of cardiac weakness. While it is mentioned as a drug which may be used, no sufficient directions are given as to its employment.

It has been well said that in the reviewing of a good book or the criticism of a work of art, it is the custom to point out only the faults and none of the good points. It may seem to our readers that this custom has been carried out in reviewing the present volume. We have mentioned the points in which we disagree with the various authors; we now wish to add what we have already intimated at the beginning of this review, namely, that this volume is an exceedingly valuable addition to the series, that the articles are unusually good, and that, taking them all in all, they well represent modern medical thought.

PRINCIPLES OF BACTERIOLOGY. A Practical Manual for Students and Physicians. By A. C. Abbott, M.D. Fifth Edition, Enlarged and Thoroughly Revised. Copiously Illustrated in Black and Colored Plates. Philadelphia: Lea Bros. & Co., 1899.

There are few writers in purely scientific medicine who are skilful enough to present the facts before them in so interesting and practical a manner as to be rewarded by a call for five editions within eight years of the appearance of the first, yet Dr. Abbott has embodied so much useful information in his text that this creditable fact holds true in

regard to his little volume, which is a small octavo of about 600 pages, including the index. The earlier chapters deal with the consideration of the first studies which were made of microorganisms, and then with the description of various parasites of a microscopic character. Passing on from this subject he deals with the principles of sterilization, with the principles involved in the methods of isolating bacteria, with those of the properties of nutrient media and the technique of bacteriological investigation, with a description of the various forms of apparatus which are needed for the study of these important organisms. The first part of the work concludes with a chapter upon inoculation of animals and their post-mortem examination. The second deals with the methods which should be employed to obtain material, with the processes of suppuration, septicemia, tuberculosis, diphtheria, typhoid fever, and with organisms which are capable of infecting man and the lower animals, as for example the bacillus of anthrax and tetanus. The concluding chapters deal with infection, with a bacteriological study of water, air, and soil, and the methods of testing disinfectants and antiseptics. An appendix describing the apparatus necessary for beginners in the bacteriological laboratory closes the volume.

To the ordinary practitioner who has not the opportunity to do bacteriological work, the second part of the volume will prove most interesting and useful, particularly the chapters dealing with infection and the methods of testing disinfectants, antiseptics, etc. The type in this book is unusually good, and this, combined with the easy style of the writer, makes it a delightful one to read, as well as of increasing one's information in regard to this ever-increasing subject.

URINARY ANALYSIS AND DIAGNOSIS BY MICROSCOPICAL AND CHEMICAL EXAMINATION. By Louis Heitzmann, M.D. One Hundred and Eight Original Illustrations.
New York: William Wood & Co., 1899.

Dr. Heitzmann tells us that in adding another to the long list of works on the examination of the urine, he has been guided by the fact that microscopical examination, and especially microscopical diagnosis, have not received as much attention in text-books as their importance calls for, while chemical analysis has been thoroughly treated in a large number of works. For this reason he naturally devotes himself chiefly to the study of the microscopic examination of the urine, but begins his volume with an introductory, which is followed by chapters upon the chemical examination of the urine, in which he deals with its general physical and chemical properties, and its normal and abnormal substances. In the second part he takes up the microscopical examination, and considers the various forms of apparatus which are employed and the character of the bodies which are seen in the urine by the aid of the microscope. The first part takes up only 33 pages, but the second part, or that dealing with the microscopical examination, takes up 113 pages; while the third part, which is entitled "Microscopical Urinary Diagnosis," deals with the lesions which are found in the various forms of renal and genito-urinary diseases. This part extends over nearly 100 pages.

We do not see in looking over this book that it differs materially from a number of other volumes upon the same subject that we have reviewed in the last year, except that it is more thorough and wider in its scope, not only dealing with substances which are ordinarily found in the urine, but with extraneous substances such as wool-fiber, starch globules, lycopodium granules, and various forms of vegetable matter. The book is a first-rate one, but does not seem to have any distinct originality, a characteristic which it would be almost impossible for it to present.

A MANUAL OF ORGANIC MATERIA MEDICA. Being a Guide of Materia Medica of the Vegetable and Animal Kingdom, for the Use of Students, Druggists, Pharmacists, and Physicians. By John M. Maisch, Ph.M., Phar.D. Seventh Edition, Revised by Henry C. C. Maisch, Ph.G., Ph.D. Copiously Illustrated.
Philadelphia: Lea Bros. & Co., 1899.

As we have pointed out in reviewing earlier editions of this well known book, it is one which will prove much more useful to the student of pharmacy than to the student of medicine, and that it does meet a distinct need in pharmaceutical literature is evidenced by the fact of its being in the seventh edition. The book is a small octavo of about 400 pages, and deals with the origin, habitat, description, allied plants, constituents, and properties of the various drugs which are official. The portions of the text devoted to the consideration of the properties of the various drugs are exceedingly condensed, too much so to permit of the information being used in therapeutics. On the other hand, it is a most excellent summary of materia medica from a botanical point of view, and in those schools of medi-

cine in which the somewhat old-fashioned method of teaching materia medica by studying the botany of medicinal plants is still carried out, the book will doubtless continue to be popular, as it is undoubtedly the best one of this class. From what we have already said, it is evident that it fully meets the needs of pharmacy students.

ANNUAL AND ANALYTICAL CYCLOPEDIA OF PRACTICAL MEDICINE. By Charles E. de M. Sajous, M.D., and 100 Associate Editors and Corresponding Editors. Illustrated with Chromolithographs and Maps. Volume III.
Philadelphia: F. A. Davis Co., 1899.

It is but a few months since the second volume of this interesting and complete work edited by Dr. Sajous appeared. The criticism which we made in the earlier issues of the THERAPEUTIC GAZETTE concerning the predecessors of Volume III holds true also in regard to this one, namely, that the volumes attempt to deal with medical literature scattered over too large a number of years. On the other hand, this very wide scope enables the various contributors to give quite extensive articles concerning the various subjects which they discuss, and the labor of compiling such an enormous amount of material (for the book is a large one of nearly 600 pages) must have been very great. The present volume begins with the subject of Dislocation and closes with the discussion of Infantile Myxedema.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX FOR 1899.
New York and Chicago: E. P. Treat & Company, 1899.

This, the seventeenth, issue of the Medical Annual comes to us possessing the many good characteristics of its predecessors. The book is designed, as most of our readers probably know, to give a brief *résumé* of the important points which have been gathered together from medical literature during the year 1898. It opens with a dictionary of new remedies, representing the therapeutic progress for the year, by Dr. Murrell of London, and closes with a brief monograph upon pathogenic bacteria in the human subject by Shattock, which is illustrated by a number of chromolithographs designed to show various bacteria, the Widal reaction, and in general describe the microorganisms under consideration. While there is no particular part of this book which seems to us worthy of mention above another, it is altogether a most creditable summary of medical literature, and the seventeenth volume deserves the success obtained by its predecessors.

ENCYKLOPAEDIE DER THERAPIE. Herausgegeben von Oscar Liebreich, Dr. Med. Unter mitwirkung von Martin Mendelsohn, und Arthur Würzburg.
Berlin: Verlag von August Hirschwald, 1899.

This volume of Liebreich's Encyclopedia, which we have reviewed during the past four years in the THERAPEUTIC GAZETTE, extends from the subject of Mammary Neuralgia to Pharyngitis, and covers 320 pages. It will be remembered that although it is entitled an Encyclopedia of Therapeutics, it is in reality an encyclopedia of medicine in general, and deals with subjects so distantly connected with therapeutics as mediastinal tumors. The present volume is exactly like its predecessors in scope, and contains articles by such well known men as Zuntz, Lesser, Liebreich himself, Riess, and Eulenburg; and when it is stated that these articles are creditable to the authors, and we remember the high standing of these writers in German literature, it can be readily understood that the volume is worth possessing by those who are able to read German.

DISEASES OF THE EAR, NOSE, AND THROAT, AND THEIR ACCESSORY CAVITIES. By Seth Scott Bishop, M.D., D.C.L., LL.D. Second Edition, Thoroughly Revised and Enlarged. Illustrated. $4.00.
Philadelphia: The F. A. Davis Co., 1899.

Scarcely two years ago we took pleasure in reviewing the first edition of Dr. Bishop's book upon Diseases of the Ear, Nose, and Throat, and Their Accessory Cavities. As we pointed out at that time, the book is almost too freely illustrated, if that is possible, and certainly no one can say that it does not represent the author's individual ideas, for it is emphatically, at least in certain portions of it, a mirror of his views. On the other hand, there are portions of the work which are thrown together in a more careless way than we would expect to find in the second edition of so useful a manual; notably is this the case in the chapter which deals with the use of antitoxin in diphtheria, where the author has provided the reader with abstracts of the writings of others instead of simply quoting other authors and summarizing literature in a general way.

The present edition has been entirely reprinted in smaller type, which is, however, of excellent size, and contains much more text to the page than its predecessor. Some of the colored lithograph plates which illustrated the first edition, and which were evidently taken from Dr. Sajous' book on this subject, have been replaced by others which are quite different in their appearance, and which,

while they illustrate very well indeed the facts which the author desires to illustrate, do not possess the natural appearance of the earlier ones. The earlier book contained less than 500 pages; this contains 551, and as we have said, there is much more material to the individual page, so that the second edition is considerably larger than the first.

A TEXT-BOOK ON PRACTICAL OBSTETRICS. By Egbert H. Grandin, M.D. With the Collaboration of George W. Jarman, M.D. Second Edition, Revised and Enlarged. Illustrated. $4.00.
Philadelphia: The F. A. Davis Co., 1899.

This second edition is considerably larger than the first, and is designed to represent in every detail the present views which are generally held by advanced obstetricians in regard to obstetrical surgery and the puerperal state. The book is well printed and well illustrated by figures from life and by original woodcuts, which illustrate various normal, pathological, and operative conditions. The index is, however, incomplete.

The fashion at the present time of illustrating books by means of photographs does not always give the most information to the reader, for in these photographs certain anatomical details are frequently lost, and the absence of color prevents differentiation between various tissues. Thus in the present volume, illustrations showing the method of expressing the placenta and of catheterizing a woman do not add really very much to the value of the text, and Plate 37 is particularly susceptible to this criticism.

We have read with interest what the authors have to say in regard to the use of ergot in labor. They believe that when the physician is satisfied that the uterus is empty, ergot should be administered in the dose of one drachm by the mouth — we presume in the form of fluid extract. They recognize, however, that the necessity for the administration of ergot is disputed on the ground that contraction of the uterus ought to take place physiologically; but on the other hand they believe that women rarely approach and pass through labor in a strict physiological manner, and that therefore this drug, which they think can do no harm, assists in maintaining the contraction of the uterus and thereby hastens involution. We are glad to note that they emphasize the fact that during labor this drug has no place. Ignorance of this fact has produced a vast amount of harm; it is only, as they say, when the uterus is completely empty that the administration of this drug is justifiable.

In the treatment of uterine inertia the authors recommend the use of twenty grains of quinine by the mouth or thirty grains by the rectum, in addition to uterine massage, and if the exhaustion is profound and the fetal heart weak, the application of the forceps. As is well known, the use of quinine is believed by some eminent obstetricians to be useless and prone to cause hemorrhage. However, this is a disputed point.

THE NEWER REMEDIES. A Reference Manual for Physicians, Pharmacists, and Students. By Virgil Coblentz, A.M, Ph.M., Ph.D., F.C.S. Third Edition, Revised and Enlarged.
Philadelphia: P. Blakiston, Son & Co., 1899.

We can most cordially recommend this little manual of about 150 pages to our readers. It costs one dollar and contains adequate descriptions of practically all the newer remedies, including their synonyms, sources, methods of preparation, tests, solubilities, incompatibles, medicinal properties and doses as far as known, together with sections on organotherapeutic agents and indifferent compounds of iron. After the name of each chemical substance its formula is given, and the text affords us a most excellent summary of valuable knowledge. While it is of course true that many of the remedies named are not of great value, it is a most useful book to have at hand for reference.

THE ANATOMY OF THE CENTRAL NERVOUS SYSTEM OF MAN AND OF VERTEBRATES IN GENERAL. By Prof. Ludwig Edinger, M.D. Translated from the Fifth German Edition by Winfield S. Hall, Ph.D., M.D., Assisted by Philo Leon Holland, M.D., and Edward P. Carleton, B.S. Illustrated.
Philadelphia: The F. A. Davis Co., 1899.

A number of years ago Professor Riggs, of St. Paul, prepared for American students a translation of the earlier German edition of Professor Edinger's well known work upon the Anatomy of the Central Nervous System. The present edition, which is prepared from the fifth German edition by Prof. Winfield S. Hall, with the assistance of Dr. P. L. Holland and Edward P. Carleton, all of whom are teachers in Chicago, is a great improvement over the earlier editions, largely because Professor Edinger has embraced the opportunity of improving his original German work within the last few years.

The present volume is a large octavo of 450 pages, well printed, and contains 258 illustrations designed to render lucid the anatomical facts which are stated in the text. If we remember rightly, when we reviewed the first American edition of this work we

expressed our regret that in reproducing the illustrations the lettering of the cuts had not been changed into English, but that the German anatomical terms had been retained. This objection has to be sure been set aside to a certain extent by the legends which are attached to some of the illustrations, in which translations of the German words are given; but on the other hand certain illustrations marked with German anatomical terms are not provided with such translations, and to those who are not familiar with German literature this may cause some difficulty in studying the matter, which is by no means easy to the ordinary student. At the same time, we cannot read the volume without being impressed with a fact already familiar to those who are in touch with neurological literature, namely, that Professor Edinger has provided us with a valuable contribution to medical literature, and one which should be in the hands of all those who are interested in neurology.

We congratulate the translators upon the excellent work which they have done, and upon their careful preparation of the text for American readers.

MATERIA MEDICA AND THERAPEUTICS. By J. Mitchell Bruce, M.A., M.D.
Philadelphia: Lea Brothers & Company, 1899.

This is an advanced edition of Dr. Bruce's well known little summary of Materia Medica. It is not designed as a practitioner's handbook, but as a student's *vade-mecum* in which the names, origins, actions, and toxicology of important drugs are discussed. Careful descriptions are given of the physical and chemical characteristics of the various substances, and it is because of these concise and lucid characteristics that the book has proved one of the most successful contributions to therapeutic literature that we know of. The concluding part of the work deals with general therapeutics and the foundations of rational treatment, and is exceedingly valuable, being practically a general discussion of the rules governing therapeutic procedures in the treatment of various diseases.

AN EPITOME OF THE HISTORY OF MEDICINE. By Roswell Park, A.M., M.D. Second Edition. Illustrated with Portraits and Other Engravings.
Philadelphia: The F. A. Davis Co., 1899.

As Dr. Park well says in his preface, it is extraordinary that a second edition of a work of this character should be called for within a year after the appearance of the first, and it illustrates the fact that the medical profession was in need of such a summary of historical matters medical, and also that they are desirous of learning something concerning the earlier history of medical affairs in Europe and America.

As we pointed out in our review of the first edition, the book not only deals with those individuals who may be truly called the "fathers of medicine," but also with many of the eminent medical men of this century in England and America; and the last chapters are illustrated by pictures of Benjamin Rush, George B. Wood, R. Dunglison, the elder Flint, Physic, Sims, and Agnew. A picture is also given of the first administration of ether as an anesthetic, in the Massachusetts General Hospital. Naturally a picture of Lord Lister accompanies the article upon antiseptic surgery.

LABORATORY WORK IN BACTERIOLOGY. By Frederick G. Novy, Sc.D., M.D. Second Edition, Revised and Enlarged. Illustrated.
Ann Arbor: George Wahr, 1899.

Dr. Novy has the knack of preparing facts in such a way as to make them prove very useful to students, and the second edition of his little manual on Bacteriology will increase his reputation as an easy writer and as a good teacher of bacteriological technique.

The present volume contains the necessary illustrations to render the experiments he suggests entirely clear, and opposite most of the descriptions of important microorganisms is placed a blank page upon which the student is supposed to draw the microorganism which he is studying. In other words, the book is designed not simply as a description of pathogenic and other microorganisms, but also as a working manual for the laboratory. It seems to us to meet in every way the requirements of such needs in teaching, and we believe that the second edition will be even more successful than the first.

THE MEDICAL COMPLICATIONS, ACCIDENTS, AND SEQUELÆ OF TYPHOID OR ENTERIC FEVER. By H. A. Hare, M.D., B.Sc. With a Special Chapter on the Mental Disturbances Following Typhoid Fever, by F. X. Dercum, M.D.
Philadelphia: Lea Brothers & Company, 1899.

This is an octavo volume of a little less than 300 pages devoted to the subject named in the title, and considers cases occurring in the author's practice, and also a discussion of the very large literature which exists at the present time concerning this very interesting disease.

Typhoid fever occurs in so many aberrant

forms and presents so many puzzling manifestations that in many instances it fails to correspond in any way in its course to the classical descriptions in text-books, and this book is designed to throw light upon such complications.

A TEXT-BOOK OF OPHTHALMOLOGY. By Ernest Fuchs. Authorized Translation from the Seventh German Edition, by Alexander Duane, M.D. Copiously Illustrated. Second American Edition.
New York: D. Appleton & Co., 1899.

There are very few books which undergo the process of translation which are sufficiently popular to attain the honor of second editions in this country, and when it is considered how many excellent books on ophthalmology have been written by English and American physicians, it is surprising that even such a useful work as that of Professor Fuchs should have been so successful. Doubtless a large amount of this success depends upon the careful work which has been performed by the translator and editor, Dr. Duane, who is favorably known in America not only to ophthalmologists in particular, but also to the medical profession in general.

Much space of the book is saved from time to time by printing comparatively unimportant matter in small type. The illustrations, as a rule, show what they are intended to show, although they are not as well executed as we are accustomed to see them in American books at this time.

We are glad to see that the use of antitoxin is recommended in diphtherial conjunctivitis, although, as is well pointed out by the editor, this condition is rarely met with in America. We doubt not that this edition will prove as popular with the profession as its predecessor.

THE STUDY OF THE HAND FOR INDICATIONS TO LOCAL AND GENERAL DISEASES. By Edward Blake, M.D.
London: Henry J. Glaisher, 1899.

A few months ago a small brochure with a pliable cover came to our hands with the title borne by this volume, which is an octavo of a little over 100 pages, and is the second edition of the little handbook to which we have just referred. The demand for the earlier edition has caused the author to give some care to the preparation of the text, which has also been enlarged.

A large part of the present volume deals with the changes which appear in the skin of the hand in the various forms of skin disease, and the rest of it is devoted to the changes in the contour and character of the hand in various pathological conditions. The volume closes with quite a copious bibliography on such diseases as achondroplasia, acromegalia, acroparesthesia, and other comparatively rare diseases involving the hand. Quite a full index completes the volume.

LEGAL DECISIONS AFFECTING PHYSICIANS, DENTISTS, DRUGGISTS, AND THE PUBLIC HEALTH. Together with the Proof for the Prosecution of Unlicensed Practitioners, etc., etc. By W. A. Purrington.
New York: E. B. Treat & Co., 1899.

This is an exceedingly useful little book of about 100 pages, the function of which is well described in its title, namely, to bring to the hands of medical men information about their legal status, in the various States of the Union, and about the legal relations which they hold with patients and other practitioners.

Various ruling cases are cited which are designed to establish precedents for legal decisions in regard to the matters under discussion. The price of the book is fifty cents, and it is well worth purchase by every physician.

CLINICAL LECTURES ON NEURASTHENIA. By Thomas D. Savill, M.D.
London: Henry J. Glaisher, 1899.

Dr. Savill is already well known to medical readers, as he has already published a small volume upon Epidemic Skin Diseases, and is about to bring out a small handbook upon the Diagnosis, Prognosis, and Treatment of Diseases of the Nervous System. The present small octavo volume, of a little over 135 pages, consists in part of lectures which he delivered in a postgraduate course in 1891, and again in other lectures which were delivered during the years 1897 and 1898. Some of them have already appeared in the *Clinical Journal*. Dr. Savill's object in printing these lectures is to present in as clear and lucid a manner as possible his views in regard to the difficult questions which arise in the diagnosis of neurasthenia from symptoms produced by distinct and true pathological changes in the nervous system.

It is well known to those of experience that at times the symptoms of neurasthenia ape those which are produced by true nervous lesions in a manner which is difficult to differentiate. Dr. Savill seems to have successfully considered the various points which are necessary in the study of these cases. The text closes with a list of the more important contributions to the study of neurasthenia which have been made by American and foreign authors and with a copious index.

A MANUAL OF ANATOMY. By Irving S. Haynes, Ph.B., M.D. With 134 Half-tone Illustrations and 42 Diagrams.
Philadelphia: W. B. Saunders, 1899.

This addition to the rather copious elementary literature on anatomy will be fairly well justified by the illustrations alone, which are in the main admirable reproductions of photographs from dissections. The viscera and the relations to the surface of the body have been accorded the most prominent place in illustration and description. The study of the bones and of the joints, and of those minute parts which require special preparation for the dissection, has intentionally been omitted. The book seems excellently arranged for the student, and should serve as a help in the dissecting-room. The index is particularly to be recommended, on account of its accuracy and completeness.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

Since our last letter the first volume of "A Manual of Surgical Treatment," by Messrs. Watson Cheyne and Burghard, both surgeons to King's College Hospital, has come to hand. The work is to be in six volumes, of which the remaining five will be issued at intervals of not less than six months. The work is in no sense a dictionary, and only aims at recording those methods that have commended themselves as best in the daily practice of the writers. One great merit of the volume before us is that the patient is not, as in most treatises of the kind, relegated to oblivion as soon as he is removed from the operating table, but a great deal of attention is lavished on the details of after-treatment. If the remaining volumes maintain the high standard of the first, the authors will assuredly have made a very substantial addition to the surgical library of every class of practitioners. The work is to be published in America by Lea Brothers & Co., of Philadelphia, and each volume may be had for the modest outlay of three dollars.

Dr. Hale White made a further communication to the Clinical Society on "Three Cases of Right Colotomy for Chronic Colitis." The first case was that of a woman with membranous colitis of twenty years' standing, which had brought her to the last stages of exhaustion. The general tenderness of the colon pointed to extensive disease. From the time of the colotomy she rapidly gained ground. The artificial anus was closed after a year, and now a year and a half later the patient is to all intents and purposes in perfect health. In this, as in the succeeding two cases, the colotomy was performed in two stages, and the formation of membrane ceased immediately the bowel was stitched to the skin, and prior to opening it. From this Hale White contends that the formation of membrane is to some extent a neurotic phenomenon, susceptible of reflex inhibition, and certainly the clinical history of these patients warrants this suggestion. The second case presented all the features of the first, but the symptoms were only of one and a half year's standing; four months of perfect rest to the colon restored the patient to perfect health. The third case, that of an adult male, was treated by cæcotomy with equally good results as regards the restoration of health, but he served to illustrate one disadvantage of cæcotomy as against right colotomy in that fluid feces escaped from the wound when he stooped at work. Another drawback of cæcotomy is that it is almost impossible to prevent some feces finding their way into the colon. In none of the cases was it found necessary to wash out the bowel from the artificial to the natural anus. Six months seemed to be the minimum period for which the artificial anus should be left open, and as there was no difficulty in closing the orifice even after much longer periods, it was desirable to rest the colon for as much as a year. Hale White strongly recommended right colotomy for severe cases of the following conditions: (1) intractable membranous colitis; (2) all forms of chronic ulceration of the colon that had resisted prolonged medical treatment (cases of chronic dysentery were in all likelihood amenable to this line of treatment); (3) cases of idiopathic dilatation of the colon. In the discussion that followed the paper, Charles Symonds mentioned a case of chronic ulceration of the rectum of a similar type that he had relieved by stretching the sphincter ani.

At the same meeting of the Clinical Society an interesting discussion was carried on as to the treatment of chronic empyema of the maxillary sinus between the advocates on the one hand of simple drainage through a tooth socket, and on the other hand the champions of more radical measures. The

whole question appeared to turn very much on the nature of the pathological condition. Semon and St. Clair Thomson were of opinion that tradition was correct in referring the very large majority of cases of suppuration in the maxillary antrum to dental trouble. St. Clair Thomson recorded a case of from two to seven years' duration, that had been completely cured in eight weeks by simple drainage by a spiral drainage-tube through an alveolus. Eve and Hovell, on the other hand, maintained that in a very large number of cases the condition was due to papillary outgrowths from the lining membrane of the antrum, so abundant in some cases as to completely fill the chamber and occlude the outlets. They urged free opening of the antrum through the canine fossa, so that the cavity could be inspected and the growths removed. In some cases they had found it necessary to make a counter-opening through the inner wall of the antrum at the level of the floor of the inferior meatus. The cavity was first packed with gauze and afterwards treated by antiseptic irrigation. The general feeling of the meeting was strongly in favor of the established procedure of first attempting simple drainage through the alveolus, combined with daily irrigation of the cavity with some simple alkaline lotion. The latter process was one that could easily be entrusted to the patient himself. Even in the cases of polypoid outgrowth, which it was generally agreed were extremely rare, there could be no objection to a preliminary trial of this method, which in no way precluded subsequent recourse to the more radical procedure, if that became necessary.

Dr. Leslie Phillips, of Birmingham, writes zealously in favor of antipyrin as a curative drug in cases of nocturnal incontinence of urine. There is, of course, no novelty in the employment of this particular drug for the condition in question. A very superficial survey of the pathology of enuresis will demonstrate the futility of any drug for all cases. We can hardly conceive of a single remedy alike applicable to oversensitiveness of the bladder, to weakness of the sphincter, to hyperacidity of the urine, and to a riotous nerve system. To trust to any drug in so complex a condition is to court failure, and contrariwise, we are of opinion that many drugs will be found useful, but only as adjuncts to other and more important general measures.

Dr. Kirkpatrick read a paper before the Royal Academy of Medicine in Ireland on "Room Disinfection by Formic Aldehyde." The method employed was to vaporize ten-grain formalin tablets in a Zimmerman's "alformant" lamp. He showed that the process, while extremely simple, was far more effective than disinfection with such gases as sulphurous acid, bromine, and chlorine. A more detailed report was communicated by Dr. Littledale of actual experiments on test objects such as threads steeped in emulsions of various organisms. These threads were variously exposed, either free, or wrapped in filter-paper, or concealed in the pocket of a coat or between the leaves of books. Nine hours' exposure completely devitalized all those freely exposed, so that no growth could be obtained on nutrient media, while those more closely concealed seemed hardly to be affected at all. One experiment with sputum is of special interest from its bearing on disinfection of tuberculous material. Sputum was openly exposed on cover-glasses, on which it had been let dry in the oven at 37° C., and after exposure for nine hours no growth took place in broth for two days—that is, until the surface layer digested off and the deep surface was exposed. In dried pus, exposed on gauze, the effect was far more destructive.

In an admirable article in the current number of *Brain*, Dr. James Collier has investigated the correctness of Babinski's "toe-phenomenon," together with other conditions of the plantar reflex. Substantially he confirms the observations of Babinski. He finds that in almost all cases of lesions of the pyramidal tracts the form of plantar reflex is changed from the normal adult flexor type to a type closely resembling the infantile extensor response. In infants, up till the age of learning to walk, the succession of contraction of muscles in the plantar reflex is entirely different from that of the adult; the adult type seems to be acquired along with full volitional control over the legs—that is to say, usually between the second and third years. In lesions of the pyramidal tracts this change of type of the plantar reflex is one of the first signs to appear, and the last to disappear when the lesion is temporary; in some cases it is the only unquestionable objective sign. This form of reflex is never found under other conditions, and is therefore a most valuable indication of structural change in the pyramidal system. With regard to the condition of the normal plantar reflex during sleep, he finds that the reflexes are diminished, but the infantile and adult

forms respectively are preserved, except in some children up to the age of twelve years, where in deep sleep the infantile form of reflex returns. In cases in which the cord is completely severed transversely, the extensor reflex response is the only reflex phenomenon present in the lower limbs. This extensor reflex is never present in functional cases, although the flexor reflex response may be absent or difficult to elicit. This phenomenon, therefore, is a guide of first importance in distinguishing functional paralyses from lesions of the pyramidal systems. In tabes and peripheral neuritis, in cerebral and cerebellar tumors, not involving the pyramidal system, in neurasthenia, chorea, paralysis agitans, poliomyelitis, myopathy, and sciatica, the reflex is present in the flexor response.

Dr. Collier has also investigated the causation of pes cavus in spastic states. He shows conclusively that Duchenne's theory, that the pes cavus of spastic conditions is due to weakness of the interossei, is untenable; the condition is, however, intimately associated with the extensor response in the plantar reflex, and is produced by a state of reflex hypertonicity preponderating in those muscles which respond most vigorously in the plantar reflex. In all such cases of pes cavus evidence of increased tone in certain muscles can be demonstrated.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

At a discussion that took place at the Society of Surgery on the 10th of May, the treatment of tuberculosis of the testicle was brought up and examined by several of the most eminent members of that body. Dr. Félizet, surgeon of the Paris hospitals, began by stating the method he employed in children, and which he has been using during the last fifteen years. As the skin of the scrotum does not give a good line of suture, he makes the incision back of the scrotal sac, near the perineum. The testicle is pushed back and an anteroposterior incision is made half-way between the middle line and the genito-crural line. This incision is two centimeters long for children and four or five for adults. The cremaster is cut in part and the testicle is enucleated. The mass is drawn down as far as possible, and two artery-forceps are placed as high as possible on the funiculum, and removed after forty-eight hours. Cicatrization takes place in a few days. When ulceration already exists on the scrotum an incision is made around the latter and the same method is carried out, two or three sutures being placed on the skin. The speaker said he would try Doyen's method of "broiement" crushing of the arteries.

The subject of castration in tuberculous lesions is *sub judice*, some authors, like Dr. Lejars or Dr. Quénu, being adverse to such radical measures.

Dr. Quénu spoke on this subject, and said he thought it better to keep as much as possible of the testicle unless this organ was completely invaded. Where the lesions were localized, incision of the foci and cauterization with chloride of zinc are indicated. In case the epididymis was invaded, resection of the morbid part must be carried out. In subacute lesions opening of the abscess and cauterization were to be recommended.

Dr. Nimier, army surgeon, Dr. Lucas Championnière, Dr. Reclus, and Dr. Théophile Anger were of the same opinion as Dr. Quénu, and preserve as much as they can of the testicle.

On the 17th of May this question was taken up again by Dr. Potherat, who said he had always seen tuberculosis supervene in the other testicle after castration. Such a result seems to have been the case with a number of surgeons, and this recurrence of the disease takes place more or less rapidly. Castration to be effective would necessitate the removal of the vasa deferentia, the two vesicles, and the prostate. Besides, nothing demonstrated that the infection takes place from the testicle towards the prostate, and it would be rash to admit that castration could influence the lesions of the prostate. The speaker concluded by saying that from a moral point of view castration was not to be recommended, and to his mind the best treatment consisted in removing all foci with the bistoury, and suturing if possible.

Dr. Bazy, surgeon of the Beaujou Hospital, showed a patient who had been castrated on one side only, and in whom there was already infection on the other side.

Dr. Monod described his treatment of hemorrhoids, which was different from that of Whitehead. Two separate purgatives were given in succession, but no enema. Chloroform is used as the anesthetic, and dilatation made with Trélat's speculum. The hemorrhoidal excrescences are then seized with clamps, which are placed in a direction parallel to that of the rectum. All the tissue

in front of the clamps is then removed and sutures made through the mucous membrane. No cutaneo-mucous membranes were thus obtained. The results had been excellent. Dr. Reclus said that his method resembled very much that of Dr. Monod, but he used cocaine instead of chloroform. Drs. Pozzi and Fillaux said they preferred to use the thermocautery. Dr. Pozzi gave as reasons for this course the fact that narrowing of the anal orifice was apt to supervene after excision of the mucous membrane.

The formula employed by Dr. Lucas Championnière in the treatment of burns may be of interest. He uses the following ointment:

Vaselin, 100 grammes;
Essence of thyme,
Essence of origanum,
Essence of verbena,
Essence of geranium, āā 0.25 centigrammes;
Naphtolate of soda, 1 to 5 grammes.

The following is the treatment used by Dr. Grasset, the celebrated neurologist of Montpellier, in the treatment of emphysema:

1. Twenty days every month give iodide of potassium 10 grammes, water enough to make 300 grammes; one large spoonful at each meal.

2. The next ten days take at each meal a spoonful of arsenate of soda 10 centigrammes, water 300 grammes.

3. Every week or every ten days take on going to bed a pill of 10 to 15 centigrammes of aloes.

4. Suppression of tobacco and alcohol. Milk at each meal.

5. If possible compressed air baths.

At a recent discussion at the Academy of Medicine, the question of the treatment of cysts of the liver was brought up, and Dr. Dieulafoy, professor of clinical medicine at the Hôtel Dieu, spoke on this subject. The question was to decide whether it is best to tap or to perform an operation. In the simplest cases, that are quite recent, it is sufficient to tap them. However, this very simple operation may be followed by the most untoward results, such as syncope and urticaria. Dr. Chauffaud has cited a case where a simple exploratory puncture had been followed by urticaria, status epilepticus, and death in twenty-five minutes. In such cases it is readily conceived that there being an excess of liquid in the cavity, there is filtration through the orifice.

Laparotomy, according to surgeons, is a very benign operation in such cases.

Dr. Dieulafoy comes to this conclusion: First, in old cysts that may have suppurated, degenerated, or which have adherences, laparotomy is to be resorted to; secondly, simple tapping with aspiration in recent uncomplicated cases is advisable; thirdly, once the trocar is in, one should remove as much as possible of the liquid, and take care not to leave any quantity. In this way all accidents are obviated. Dr. Dieulafoy said he did not believe in using injections of various antiseptics, such as corrosive sublimate, as is recommended by Baccelli.

The question of sanatoria is of course being very much discussed at present in France, and at the Society of Therapeutics a certain number of resolutions showed the drift of medical opinion on this subject. Far from carrying out the system of large sanatoria such as those established in Germany and Switzerland, medical men in France seem to prefer small sanatoria with twenty to thirty beds, or even a smaller number, where the physician in charge will be more directly in contact with his patients. The following resolutions were passed:

The treatment by sanatoria as a means of insuring hygienic discipline and dietetics is the best.

Sanatoria should be established in places where the climate is naturally suitable.

Small sanatoria with a restricted number of beds should be founded in France, in various climates, according to the needs of the patients.

The Society of Therapeutics considers it necessary to have stations so placed that after a summer cure a winter cure may be carried out in a resort not too far distant from the first.

On account of the infectious nature of the disease, admitted by physicians nowadays, the use of ordinary wards for consumptives should be forbidden. Speaking of the latter part of this resolution I can cite the Boucicault Hospital as being one where these ideas are carried out almost to perfection. The "B" Pavilion is exclusively given over to consumptives, and it is almost a small sanatorium in Paris. I intend in my next letter to give a description of this new hospital, which is the finest in France.

WOUND OF THE HEART.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: On August 11, 1897, I was hurriedly called to see a colored man, forty-five years old, six feet high, and weighing about 185 pounds,

who had been fatally stabbed some thirty or forty minutes before my arrival. At every heart beat there gushed from a small wound, directly below the left nipple, between the fifth and sixth ribs, a wave of blood. There was another wound ten inches long, extending from the angle of the eleventh rib downward and forward toward the linea alba, and through the external oblique and transversalis muscles. On passing the index-finger into the small wound lying over the heart a cut could be distinctly felt in the wall of this viscus, apparently entering the right ventricle. The external bleeding was checked, and the patient was stimulated with strychnine and nitroglycerin hypodermically. While the long wound was being sutured the patient regained consciousness; he called me by name, and gave an intelligent account of the conditions which led up to the assault made upon him. He lived for about two and a half hours after receiving his wound. The autopsy showed that the diagnosis as to the position of the heart wound was correct, and that it was large enough to admit the small finger.

Very respectfully yours,

J. O. RUSH, M.D.

COLT, ARK.

TREATMENT OF CEREBROSPINAL MENINGITIS WITH ANTISTREPTOCOCCIC SERUM.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: An epidemic of cerebrospinal meningitis prevails here in Kansas as well as in some other localities this spring, and I wish to report a case which came under my care—not that I can add anything new as to the history, etiology, or pathology of the disease, but to present the treatment which was resorted to in my case.

May D., a strong, robust girl of fifteen, was taken sick on the 28th day of April, 1899, and I was called to see her on the morning of the 29th, at 5 A.M., when I found her suffering with intense pain in the head, which she described as "throbbing pains;" neck rigid; head thrown back; temperature 101° F.; pulse 120; pupils dilated; and all the other symptoms of the disease. The patient very soon after this became unconscious, and the pulse very variable, ranging in an hour from 50 to 120, and was different every time it was counted. Dr. J. P. Lewis, of this city, was called in consultation, and by 11 A.M. we began the use of the antistreptococcic serum, giving ten cubic centimeters at that time hypodermically, and another injection of the same amount at 4 P.M. of the same day.

The next morning the patient was semi-conscious, and ten cubic centimeters was again given. On the third day the serum was used, the mind at this time being perfectly clear. On the fourth day the fourth dose was administered, and on the fifth day the fifth dose, with a constant and marked improvement, so that on the sixth day the serum was omitted. On the seventh day, the right knee-joint being badly swollen and painful, ten cubic centimeters of the serum was injected into the lower limb near the knee. Previous to this I had injected it into the subcutaneous tissue of the back, over the scapula. In a very few hours after this last injection the pain disappeared, and the swelling of the knee subsided.

From this time on recovery was rapid and uninterrupted.

It has been sufficiently demonstrated that by using antistreptococcic serum, the streptococcus can be antagonized and an animal rendered immune against that particular germ, but whether the streptococcus is found in sufficient quantity in meningitis to justify the use of the antistreptococcic serum I do not know.

Weichselbaum claims to have discovered the germ of cerebrospinal meningitis, and calls it the diplococcus intracellularis meningitidis. Whether this serum destroyed enough streptococci to make such a marked improvement in this case, or whether it destroyed the above germ of Weichselbaum, I cannot tell, but as the death-rate has been high in this epidemic and as this was a severe case, the effect was truly remarkable.

I believe that in the near future, with the aid of all the wonderful modern scientific appliances, together with the fact that some of the brightest minds in the profession are giving their entire attention to bacteriology, a serum will be prepared for each disease due to a specific germ, and that the serum will not only destroy the germ but render the person immune against that particular organism.

The serum used in my case was made by Parke, Davis & Co., and great care was used in the technique by sterilizing the needle as well as washing off the place of injection with bichloride solution and afterward sealing the needle puncture with collodion.

W. L. WARRINER, M.D.

TOPEKA, KAS.

—THE—

Therapeutic Gazette.

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Original Communications.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

BY A. JACOBI, M.D., LL.D.,
Clinical Professor of Diseases of Children in the Medical Department of Columbia University (College of Physicians and Surgeons), New York.

To avoid errors in hygiene and diet is the best preventive. The debilitating influence of persistent summer heat should be counterbalanced by improving the vitality and powers of resistance in the young. It is true no newly-born baby should be bathed in cold water, but the gradual diminution of the temperature of the water used for ablutions may go on until after a few months the healthy infant bears washing and friction with cold water perfectly well. During the hot weather it should be so treated several times a day. The clothing should be thin; those who perspire freely should have no linen next to their bodies, the claims of modern preparations of that material notwithstanding; cotton or thin flannel, both of which gradually absorb and give up perspiration, is preferable. In very warm weather a single loose gown is sufficient. No feather beds or pillows should be permitted, no heavy curtains. Surely the baby is better off in a hammock, the head being supported by a

hair- or air-pillow. Babies in bed should have their positions changed from time to time. Their mouths should be anxiously watched, a teaspoonful or more of water being given after every meal; the washing should be done without clumsy rubbing; and plenty of drinking-water, the quantity depending on seasons and the temperature of the atmosphere, should be allowed in the intervals between feedings.

This is not the place to prove for the hundredth time what I have said a thousand times before. I shall only repeat that "cow's milk is not woman's milk" and not identical with it. Sterilization or Pasteurization does not change its character; they merely obviate such dangers as result from the presence of most pathogenic germs and from premature acidulation. The substitution of sterilized cow's milk for woman's milk as the exclusive infant food is a mistake. Digestive disorders such as constipation or diarrhea, and constitutional derangements such as rachitis and scurvy, are often caused by its persistent and exclusive use.

The percentage of milk-sugar in woman's milk is larger than it is in cow's milk; indeed, it is so large that five per cent of the normal feces of a baby consists of unaltered sugar, though its change into lactic acid is very rapid indeed. Under the influence of this rapid conversion cow's milk turns sour speedily. Not infrequently it is acid from the first; it has been found to be so in the udder; in most cases it is neutral. As soon as milk is swallowed, though it was alkaline, the milk-sugar is converted into some form of lactic acid by the action of a bacillus, of which there are three varieties, according to Y. Kozai (*Zeit. f. Hyg. u. Infect.*, vol. xxxi). This process, after the rennet of the stomach has exerted its coagulating effect, together with the gradual transmutation of fat into acid, is the final cause of curdling. When there is much—or too much—milk-sugar, though some of it be not changed at all, there is an opportunity for too much lactic acid. That is mainly so in the puerperal and in the anemic woman. Both of them secrete milk with a superabundance of milk-sugar, and their babies may suffer for that reason only from obstinate diarrhea. Cane-sugar is not so easily transformed; indeed, it is utilized for the purpose of counteracting the rapid conversion of milk-sugar (as also for the preservation of articles of food in general). Trade is not so slow to avail itself of the results of organic chemistry as the medical profession. Condensed milk remains unchanged for some time on account of the plentiful addition of cane-sugar, in spite of the original presence of milk-sugar in it. Therefore it is not at all indifferent whether milk-sugar or cane-sugar be added to the food of infants and children. I have always insisted upon the selection of the latter for that purpose. Even Biedert, than whom there is nobody more inclined to be guided in his reasoning and formulæ by the conscientious imitation of chemical accuracy, employs cane-sugar in his cream mixture. There is enough milk-sugar in every infant food, containing as it does cow's milk and farinacea, to supply the demand of lactic acid required for digestion and for antiseptic effects in the lower part of the bowels. Moreover, according to Pavy, cane-sugar, part of which is absorbed, is in part inverted into grape-sugar. That is why even the amount of cane-sugar should be rather restricted in quantity, particularly in cases of sickness. In the sick the absorption of sugar is slower than in the healthy. Besides, during most diseases, particularly those of the alimentary canal, there is an unusual amount of ferment in the mouth and stomach. That is why a moderate quantity of sugar only should be given in such conditions, never in a concentrated form, and least of all milk-sugar.*

As far as other points connected with normal feeding are concerned, that being the best preventive of summer diarrhea, I beg to refer my readers to some one of my former writings (the latest of which are Therapeutics of Infancy and Childhood, 2d ed., 1898, and "Cholera Infantum," in Twentieth Century Practice of Medicine, xiv) and to insist again upon the danger involved in crowding artificially fed infants with fat (cream) and the advisability of adding cereal decoctions to the cow's milk, which must necessarily be the main constituent of infant foods. The presence of a diastatic element in the secretions of the salivary glands of the newly-born and in those of the pancreas of the very young infant, which was known perfectly well these twenty-five years, and also utilized in my practice and teaching, is no longer

*On the other hand, the effect of sugar as a means of counteracting some forms of chronic constipation in infants, due to a relative absence of sugar and superabundance of casein, becomes plain. It is a practice that I have recommended these forty years. Some cane-sugar, a teaspoonful or less dissolved in tepid water (or oatmeal water), should be given before each nursing; it will often prove the only remedy required for the regulation of the constipated bowels.

entirely unrecognized and is becoming gradually appreciated, even by the profession of medicine.* Many new observations and experiments add to our former knowledge on the subject. Only lately A. E. Austin (*Boston Medical and Surgical Journal*, No. 26, 1899) found that ptyalin remains active through one or two hours and is not even interfered with by the secretion of hydrochloric acid, which is secreted after a non-albuminous as well as after an albuminous test meal — thus confirming Th. Rosenheim (*Centralbl. f. d. Med. Wissensch.*, No. 12, 1887).

Amongst the causes of intestinal diseases not only the quality but also the quantity of food should be considered. More infants get sick from overfeeding than from underfeeding. The demand for elimination, which has to be controlled mainly by the kidneys and by the digestive glands, is excessive; these organs are overworked, and still they cannot dispose of the refuse in cases of overfeeding. Fermentation and putrefaction take the place of digestion, and gastric and intestinal, beside constitutional, disorders are the results.

Summer diarrhea is no pathological entity. It comprises all forms of diarrheal discharges, from an acute intestinal catarrh (which may or may not have a tendency to become chronic) to follicular enteritis, and streptococcic and bacillary gastroenteritis (Booker, Escherich). According to the mildness or severity of the case, the main symptoms are excessive discharge of a mucous, a serous, or a fetid character; desiccation of the tissues and general anemia, leading to insufficient nutrition and thromboses; and absorption of toxins generated by cocci or bacilli.

When any of the above named forms of enteritis is complicated with any kind of gastric disorder which is apt to show itself in nausea and vomiting, the stomach should be emptied.

The irrigation of the stomach meets with almost no difficulties in the young; an elastic catheter (No. 20 or 30 French) is sufficient. In very rare instances the nostril (mostly the right) may be used. Salt water (7:1000) may be poured through the tube from a funnel connected with it, or from a fountain syringe, which is slightly raised above the level of the pharynx, and lowered when the fluid and stomach contents are to flow out. This salt water may be mixed with a disinfectant, either thymol 1:3000–4000, or resorcin 1:1000, or in cases of known hyperacidity with bicarbonate of sodium 1:200–500. The temperature of the irrigation should be that of the body when this is normal, cooler when there is a great elevation, or warmer when there is a reduction of the body temperature. Alcohol should not be added to the injection, because its mixture with water is liable to be rapidly absorbed by the stomach. On the other hand, when water is injected without salt, it causes osmosis of the body fluids into the stomach, sometimes to such an extent as to visibly increase the amount returning from the stomach. The irrigations should amount to 100 and more cubic centimeters in the nursling, 200 or 300 in the child, and should be repeated until the liquid returns clear. The tube should always be withdrawn quickly, so that irritation of the fauces may be avoided.

The intestines should be emptied speedily by purgatives and by enemata. The former affect the whole length of the tract, the latter the lower part, as far as it can be reached by irrigations.

Irrigation of the intestinal tract is mostly performed while the patient is on his back, or side, with gently raised hips. The nozzle of the irrigator (fountain syringe) or of the tube connected with a funnel is introduced a few centimeters beyond the internal sphincter. Long tubes are generally useless; even in the cases of adults, with normal sigmoid flexures, the reports of the introduction of a tube to a distance of from twenty-five to fifty centimeters should be accepted with caution, for stiff tubes are able to raise the intestine and may be felt in the hepatic region, while a flexible tube is liable to turn upon itself. That is more so in infants and children, in whom the sigmoid flexure is multiple and can rarely be passed by an instrument. In some cases it is advisable to raise the lower half of the body considerably, according to the method I have followed these thirty years, to reduce intussusception, and to support the abdomen by a soft pillow, while the face is turned to one side to facilitate respiration. While the anus is firmly closed the liquid is allowed to flow in from a slight elevation, from ten to fifty centimeters (four to twenty inches). A greater elevation raises the pressure to an unbearable point, and the gut is no iron pipe. A slight elevation will

* It is surprising how long it takes us to divest ourselves of our ignorance or of a prejudice; may be that the agility of the wholesale food manufacturers who availed themselves all over the world of the new facts developed by Zweifel, Korowin, Schiffer, etc., discouraged the profession to accept the principle on which part of their merchandises were compounded.

improve the tolerance of the intestinal tract, which may thus be filled to the ileocæcal valve and beyond; in very exceptional cases even to the stomach. It is only an abnormal intestine, dilated in places, or bound down by previous adhesions, or abnormally sensitive, that resents the flow of the fluid by spastic contractions, or by pain or vomiting. The indication of a greater or smaller elevation is guided, in special cases, by the object to be attained. Part of the liquid—particularly when slightly saline—is absorbed, and sometimes very quickly. That is why when that is not desirable (mostly with the first irrigation when the cleaning of the gut is the only indication) the irrigator should be raised high. Then the intestine fills up more rapidly, and the return of the fluid, with the contents of the bowels, is more readily secured. From one pint (500 cubic centimeters) to two quarts of water should be used in the first irrigations. When it is desirable to secure retention and absorption of the fluid, in collapse, or when brain symptoms make their appearance, the later irrigations should be smaller. Tepid or cool water should be used when there is hyperthermy, water of the temperature of the body when this is normal, hot water when there is hypothermy with or without collapse. Medicinal agents may be added to the water; for instance, thymol or permanganate of potassium in 1:3000–4000 solutions, or subnitrate or subgallate of bismuth, of which one or two teaspoonfuls may be stirred up with a pint or a quart of water.

The addition of gum acacia to the injection, or the use of glutinous decoctions such as flaxseed instead of water is preferred by many when there is tenesmus. Starch injections (the starch to be boiled before being mixed) have the advantage of adding to the nutrition of the body by the facility with which the colon changes amylum into dextrin, which will be absorbed. Part of the injected water will always be absorbed, fill the blood-vessels, and may prevent intracranial and other thromboses. Indeed, in many bad cases in which the cerebral symptoms of the "hydrencephaloid" condition have made their appearance, or are imminent, frequent injections into the rectum of a few ounces of warm fluid contribute considerably to the restoration of circulation.

Of medicines which are to empty the bowels, castor oil, in doses of from one-half to two teaspoonfuls, is in common use, and acts well. It should not be combined with an opiate, which finds its indication after the purgative has acted. Calomel in small doses, one-tenth to one-fourth grain every hour, until the discharges show its presence, or a single larger dose of one to three grains, deserves the credit it enjoys.

Not only vomiting, but uncomplicated diarrhea, indicates the withholding of food or drink for some hours. The introduction of water into the rectum furnishes enough fluid during this dangerous condition. The thirst will rather decrease than increase during this period of apparent starvation. Indeed, owing to the gastric excitation and the intestinal hyperperistalsis, there is no absorption of ingesta. After a reasonable time small pieces of ice, which in the beginning would increase peristalsis, or a teaspoonful of boiled water (cooled) may be given, or the same quantity of a thoroughly cooked and strained barley-, or toast-, or rice-water. His favorable experience with farinaceous waters in the diseases of the infant intestine appears to have reconciled even Heubner to their administration.

At this stage of the ailment no milk is permitted, no breast milk, no sterilized or Pasteurized milk. "Under ordinary circumstances milk feeds babies, but in these extraordinary circumstances it feeds bacteria." It may take a few days or a week before the discharges cease to be thin and malodorous. After a few days the white of a raw egg, thoroughly beaten and mixed with barley- or rice-water, may take the place of milk. Meanwhile the thirst may be quenched by (now and then) a teaspoonful of a mild tea, or a few drops of good whiskey in a small quantity of barley-water may be given at safe intervals. A mixture that I have often recommended in writings and lectures, and which has rendered good service when the period of absolute starvation had passed, is as follows: One hundred and fifty cubic centimeters (five ounces) of barley-water, the white of one egg, one or two teaspoonfuls of whiskey, enough salt and cane-sugar to improve the taste. Of this a teaspoonful is administered every five or ten minutes. This is ample for sustenance, particularly when methodical rectal injections are employed. After a while sterilized or Pasteurized or boiled milk may be added, but not more than ten per cent of the mixture. As ever so many times previously these nearly thirty years, I can still recommend the mixture of hydrochloric acid with milk, according to I. Rudisch's formula. Two cubic centimeters (half a teaspoonful) of *dilute* hydrochloric acid is mixed with a pint of water, and this mixture with a

quart of milk; all of this is brought to a boiling point. If ever there be coagulation, it merely proves that the acid was in excess, by mistake. This is a mixture which is readily taken and digested by invalids and dyspeptics.

In most cases the contents of the stomach and the bowels are hyperacid and require neutralization. Sodium and magnesium salts should not be employed because of their purgative effect. The carbonate or phosphate of calcium is preferable because it has no such effect, but the additional advantage of forming with the fat acids insoluble salts that act as protectors to the sore surfaces. From one-half to two grains may be given every hour, or two or three hours. Bismuth subnitrate or subgallate, with or without opium, and the alkali, in doses of one-half to two grains, may be given every two hours; it should soon cause the stools to exhibit a slate color. If any of these remedies be given in a liquid form they should not be mixed for the purpose of sweetening with syrups, but with glycerin. These small doses I find sufficient. Most infants may tolerate the large doses now and then reported in the journals, but some do not. Lead, gallic and tannic acid, alum, etc., are badly tolerated in acute cases, and are rarely required in chronic ones; these latter will now and then do well with fluid extract of coto (one-half to one minim every few hours), and many with nitrate of silver one-sixtieth to one-thirtieth grain (0.001–0.002) every two hours, in a teaspoonful of distilled water. It is mainly in the catarrh of the lower bowels that tannalbin, tannigen, or tanocol, in doses of from three to four grains (0.2–0.25) four or five times a day, acts well.

General collapse, or thorough exhaustion, with ashy pallor and depressed fontanel, demands stimulation, with hot rectal injections of a few ounces of water with from one to five per cent of whiskey (which should be of the best, because the fusel oil of poor brands is paralyzing rather than stimulating); subcutaneous injections of the saturated solution (1:2) of the salicylate (or the benzoate) of sodio-caffein, from five to ten drops once or repeatedly, or of $\frac{1}{100}$ or $\frac{1}{80}$ grain of sulphate of strychnine, or of a grain or more of camphor dissolved in a few drops of sweet almond oil, or of whiskey, or of a syringeful of tincture of musk. In urgent cases the subcutaneous infusion (7:1000) of sterilized salt water in quantities of from 300 to 500 grammes (ten to sixteen ounces), once or more times, may prove life-saving.

Great abdominal pain may be relieved by warm fomentations (water or poultices). They should be covered with oil silk, or a rubber cloth, and flannel, and must not moisten the clothing or bedding. When the pain is accompanied with fever, cool or cold applications should be made with the same caution, and changed when they become hot. In collapse the fomentations may be rather hot.

Opium relieves hyperesthesia, hypersecretion, and hyperperistalsis; it acts more slowly and more locally than morphine, and the latter should not be given. Opium finds no place in the incipient stages of dyspeptic and stercoraceous conditions with diarrhea, but when the bowels are emptied it deserves credit for the blessings it conveys. To condemn its use, because in a case of idiosyncrasy or of mistake on the part of a practitioner or an apothecary it proved dangerous (Which drug or food never did?) is fanaticism. A baby of six months may take safely of the camphorated tincture of opium, every two, three, or four hours, from four to ten drops ($\frac{1}{90}$ to $\frac{1}{18}$ grain of opium).

Putrefaction inside the gut does not reach the degree of that outside of the body, mainly because of the presence of organic acids and the relative exclusion of atmospheric air; but still it is going on all the time. It is active in the presence of much fluid, and is kept up by the presence of nitrogenous food. Even milk is no exception to the rule; generally, if at all, it is best when fermented, and mainly when deprived of its casein. Carbon hydrates interfere with putrefaction on account of their producing organic acids, and should be the principal food permitted for some time.

For their disinfectant effect calomel, bismuth, alcohol, creosote, salicylate of sodium, salol, naphthalin, betanaphthol, bichloride of mercury, and others have been recommended. The answer to the question whether disinfection of the alimentary canal may be accomplished by internal medication should not be left to bacteriologists, but to clinical observers, who are nearly unanimous as to the good effects that can be obtained by it. Resorcin in doses of one-fourth grain or a little more every two hours, usually with some other indicated drug, has been of great service to me. Its great solubility does not militate against its usefulness in the intestine, for though the stomach dissolves it, it does not absorb it any more than, with few exceptions, it absorbs anything. Salol, which

is insoluble until it reaches the alkaline contents of the intestine, and for that reason finds its natural indication in the demands of the lower part of the small and in the large intestines, may according to the age of the patient be given in doses of from one-half to two grains every three or four hours. There is hardly any of the above named drugs that has not been tried by every practitioner of large experience. Creosote is employed by many; alcohol in the shape of brandy, whiskey, or wine is safe in a number of cases where, besides antisepsis, stimulation is required; dilute hydrochloric acid improves gastric digestion in two ways, first by acting as an antiseptic, secondly by taking the place of the natural secretion of the stomach, which is liable to be defective in every morbid condition that results in exhaustion, anemia, and insufficient glandular function.

When the urgent symptoms of the disease have disappeared there is utter exhaustion, anemia, want of appetite, absence of the normal secretions and of the muscular powers of the digestive organs. To administer iron under such circumstances is not indicated; it is not dissolved and not absorbed; indeed, there is iron enough in whatever food is indicated and assimilated. There are two remedies which act as stimulants and tonics: strychnine, any of whose salts may be given in doses of one-sixtieth grain or more daily, in divided doses; and orexin, the tannate of which should be taken a few times a day, in doses of from one to three or four grains some time before meals, several times a day. That in the course of the disease, and during convalescence, fresh air—night air being superior to no air—should be furnished, and sojourn in the country be ordered, is self-understood. Indeed, many a case will die in the city in spite of whatever is done for it, and many a one which looked desperate will be quickly relieved and finally cured by cool mountain or sea air.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

By J. P. Crozer Griffith, M.D.,
Clinical Professor of the Diseases of Children in the University of Pennsylvania.

The questions often asked one, Do you use opium in treating diarrhea in infants? Do you use castor oil? Do you give antiseptics? and so on, can be answered in two words only, "That depends." Although there are a legion of remedies recommended for this disease, a long experience with its various forms has, I think, taught me that it is not so much the possession of a large variety of therapeutic measures which is needed, as it is the knowledge of how to choose any of them for the individual case. The physician who shows the best judgment in his selection may naturally be expected to obtain the best results. Not only is the nature of the diarrheal affection to be considered, but the stage of the disease also, and especially the condition of the patient. Finally, in dispensary practice there is a still more puzzling factor, viz., what therapeutic procedures one is able to have carried out.

The measures which I employ are few in number, but selected after much experimenting. In the *early* stages of simple acute diarrhea—call it by whatever name we please—the stopping of the supply of fuel to the fire is generally all that is needed. It is in such cases that free purgation is useful—by calomel, castor oil, magnesia, or other drug. As there is very liable to be some vomiting attending, my usual preference is for calomel, combined with bicarbonate of soda, in divided doses, for castor oil and other drugs are very apt to be rejected by the stomach. Combined with this treatment must be entire abstinence from the usual food. Withdrawal of *all* food is theoretically to be desired; but inasmuch as this, though good for the baby, is hard upon the sympathies of the mother, I generally order barley-water or gelatin-water in small amounts. Egg-water is useful where the condition of the child demands stronger nourishment.

By the second day of treatment we may generally conclude that the toxic substances have been removed, and that we have to deal with the remaining catarrhal condition of the intestine. As a rule purgatives are no longer needed, but the same plan of feeding should be followed. Should the diarrhea be still unabated by the second or third day of treatment, methods to check it may be required. After trial of many I still find nothing so generally useful as bismuth, giving four to five grains every two or three hours even to very young infants. Chalk mixture may be combined with this, with an aromatic water if there is much colicky pain.

In cases in which the diarrhea still tends to persist, other drugs may be used. Kino and krameria are useful remedies formerly much employed, but now largely replaced by newer astringents, such as tannalbumen and tannigen. I have found tannigen often disap-

pointing, but sometimes of service in cases which tended to prove obstinate.

In other rather persistent cases the administration of sulphuric acid is often of value. The antiseptic drugs have been found generally disappointing in my experience. Betanaphthol bismuth has sometimes seemed serviceable. Salicylic acid, resorcin, naphthalin, and others have all been tried. In combination with other remedies good often followed; used alone this was seldom the case. The inference was obvious. In some obstinate cases the continued administration of a mercurial in small doses is sometimes of service. In others, although only exceptionally, I have found the giving of castor oil daily during a few days apparently do good. Both of these are plans of treatment once very popular.

The question of the use of opium has been much discussed. After careful comparative tests in series of cases as similar as possible, I am convinced that this drug is often indispensable after the early days of the disease are over. Frequently its addition appeared to be the only means which would control the catarrhal state. It is sometimes necessary to give opium even early in the disease. There is the danger from this that the poisonous matters in the intestine may be locked up there and absorbed, and the general condition of the infant made much worse. On the other hand the child is sometimes weakened to such an extent by a profuse discharge from the bowel that the checking of this by any means possible is the first indication. I know of nothing requiring more judgment than the decision whether or not to give opium in certain cases. It is certain that the indiscriminate giving of opiates in the diarrhea of infants is to be deprecated.

The question of the use of lavage of the bowel is one of importance. A single large enema is sometimes very serviceable at the beginning of the treatment. As a rule, however, I find the methods already described preferable, except in those cases where from the beginning, or later, there is a great preponderance of mucus in the stools, although without evidence of an inflammatory condition being present. Here large injections of starch-water or of normal salt solution, given once or twice a day, will often do more good than any drug given by the mouth.

The return to the usual diet must be made with the greatest caution, as it is sometimes difficult to accomplish. No rules whatever for this can be laid down, except that the proteid element of the milk should at first be small in amount. Whey, cream mixtures, beef juice, egg-water, weak peptonized milk mixtures, and the like, all find their appropriate place in cases where the powers of digestion and absorption remain weak for a time. Alcohol and tonics in general are to be used when needed. No rules can be given.

Many of the cases of severe acute summer diarrhea appear to be instances of *heat exhaustion*. It is often a question whether we have to deal so much with an intestinal poisoning by bacteria, as with a profuse leakage from the bowel induced by excessively hot weather. A careful study of this matter during the heated terms of a number of years has convinced me that we err if we treat these cases with our minds centered on the idea of a bacterial cause alone. The coolest of clothing, the use of cool baths several times a day in suitable cases, the entire removal from hot weather, especially in cities, when practicable, or when not, the sending of the children into the parks, or preferably on the water during the daytime, are our best means of treatment. I have often told mothers not to return to the clinic until the weather was cooler, as I could not do as much for the babies as the cool air of the Delaware River could accomplish.

The treatment of enterocolitis is simple in its methods; difficult in the attaining of the desired results. Drugs given by the mouth have comparatively little influence. Bismuth in full doses is probably one of the best. Opiates may be needed to relieve pain and tenesmus, but have no distinctly curative action. On the other hand, local treatment is of the greatest importance. Douching the bowel once or twice a day with starch-water has stood me oftenest in stead. The injection must be given slowly, and the infant made to retain as much as it can hold for some moments—best from a fountain syringe suspended not more than about two feet above the bed. Sometimes astringent enemata of tannic acid one-half to one per cent, or of nitrate of silver one-eighth to one-fourth per cent, act well, but I have often seen them increase the straining. The effect cannot be predicated; it can be determined only by trial. The addition of a small amount of laudanum to the enema is sometimes helpful. I have found enemata of a suspension of bismuth in mucilage of acacia sometimes of service.

Of very great importance in this disease is change of air and change of diet. It happens not infrequently that babies seem to have lost their power to digest milk in any form. In such cases to give it at all is harmful, until recovery is well under way.

This form of diarrhea often lasts for weeks, and the general health suffers greatly, necessitating careful tonic and supporting treatment.

Infants developing enterocolitis in hospital wards had better be removed. Not only is their treatment there absolutely discouraging, but the disease is certainly often infectious and will spread to others.

Cases of what I can truly call cholera infantum do not very often come under my observation. The name is very commonly misapplied. It is well to remember that in this disease we are dealing not so much with a poison still in the intestinal canal as with one in the system. We have the symptom of profuse exhausting discharge from the bowel, and this symptom must be combated at once with opium in full doses. The other severe manifestations of this disease are to be treated symptomatically as they arise.

The condition of pseudomeningitis depending on diarrheal diseases is frequently seen. It must be treated according to circumstances. There sometimes arises a curious condition in which there is present apparently a paralytic condition of the vasomotor and, probably, pneumogastric systems, yet with no special simulation of meningitis. In such cases, without any exhausting diarrhea or evidence of intestinal decomposition, the child breathes constantly with great rapidity, exhibits flushing of parts of the body, has a rapid, feeble pulse, and may readily die promptly without one being able to tell just why. Undoubtedly this is a toxemic state. While not neglecting the condition of the bowel whence the trouble comes, our chief efforts must be directed to the nervous condition. Strychnine in full doses, nitroglycerin, digitalis, and atropine will aid us most.

What I have written briefly is not, of course, intended to cover the wide subject of the treatment of the diarrheas of infancy, but only to express the result of personal experience and observation. I must urge in closing what has already been indicated—that any methods detailed can have only a general application. The individual is everything, and the features of each case must be carefully studied to obtain good results.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

By L. Emmett Holt, M.D., New York,
Professor of Diseases of Children in the New York Polyclinic.

It must be distinctly kept in mind that cases of summer diarrhea, so called, are not at the outset inflammations of the mucous membrane of the stomach and intestines, although inflammation of a serious character may afterwards develop. The initial condition is in the nature of an acute intoxication, which arises from the materials in the digestive tract. The circumstances which favor such a state of affairs are an arrest of stomach and intestinal digestion and the presence of food remains readily acted upon by the bacteria, which were there before, or which have been introduced with the food (usually milk) which has been taken. The damage done to the epithelial walls and afterwards to the other coats of the intestine, as well as the constitutional symptoms which form the familiar picture of a severe case of summer diarrhea, are both the consequences of changes taking place in the matter contained in the gastrointestinal tract. The inflammations developing in other organs, especially the kidneys, are also a result of the absorption of such toxic materials into the general circulation.

It being therefore the gastrointestinal contents which are the *fons et origo* of the trouble, it follows that the first indications for treatment are to *stop all food, but especially milk*, and to evacuate the stomach and bowels by the most certain, easy, and rapid means at our disposal.

Stomach Washing.—This is useful where vomiting is a prominent symptom, and is of value chiefly in cases seen early. In such it is well to use the water at a little higher temperature than usual—*i.e.*, at 110° F., or even a little above this point. I see no advantage in adding anything to the warm water (which should first have been boiled) except a little bicarbonate of soda, where there is considerable ropy mucus in the matters brought up. The washing of the stomach must be thorough, nearly a quart of water being used, and allowed to flow in and out of the tube until it comes away quite clear. It is often well to leave three or four ounces of water in the stomach.

It is rarely necessary to repeat the stomach washing.

Intestinal Irrigation.—This is of very great value—I am inclined to think of more value

than anything else we can do for these cases, except perhaps to stop food. It is, however, of little avail unless properly carried out. Some reference to details may therefore not be out of place. The catheter used should be of flexible rubber, should have considerable resistance, and should be nearly new, as one much used soon becomes so soft and bends so easily as to make full introduction difficult or impossible. I prefer the infant's rectal irrigating tube (made by Tiemann & Co., New York), which is about twenty inches long, the usual size being that of a No. 18 American catheter, but a little heavier than catheters are generally made, and having an opening at the end as well as an eye on the side near the extremity. This tube does not bend easily upon itself, and when fully introduced reaches almost to the splenic flexure; in that position it is an easy matter to flush out the entire colon.

Instead of the fountain syringe I prefer a glass irrigator, which enables one to see at a glance whether the water is flowing steadily or is obstructed by bending of the tube or any other cause. The amount of force employed is of some importance; an elevation of the irrigator four feet above the patient is quite sufficient, and much more than this may be harmful. I prefer a saline solution (one drachm to the pint) at a temperature of 100° to 104° F. Water at a lower temperature often causes so much contraction of the muscular coats of the colon as to interfere with thorough flushing. However, after using three or four quarts of the warm water, I often introduce at the end, particularly if the patient's temperature is high, one quart at 65° or 70° F. This has a good tonic effect on the mucous membrane and has a favorable influence on the body temperature. It is by no means necessary to have all the water escape through the tube; on the contrary it is in most instances advisable to allow at least a pint to remain, for the system is usually suffering greatly from the lack of fluid resulting from the diarrhea.

If properly done, irrigation empties the colon and does it thoroughly; but this is soon filled again by the descent of materials from the small intestine. Such a descent seems greatly to be hastened by washing the colon. It happens therefore that in a few hours the colon may contain almost as much as when it was first washed out, and the irrigation must be repeated.

No one would think that he had done his duty when he had washed out a septic uterus once in twenty-four hours; and for similar reasons irrigation of the colon must be repeated in severe cases with high temperature and marked nervous symptoms at least once in six hours if we are to expect much from it.

The importance of washing out the colon and keeping it clean cannot be overestimated in relation to the production of serious intestinal lesions in the protracted cases. There appears to be a definite and constant relation between the situation of the intestinal lesions and the movement of the intestinal contents. In the jejunum and upper ileum, where the contents are propelled rapidly onward, serious lesions are never seen. When lesions are present, they are always situated where the intestinal contents are arrested and accumulate, viz., in the lower part of the ileum and the colon; while in the colon itself it is the cæcum, the sigmoid flexure, and the rectum which suffer most.

Cathartics.—While distinctly less valuable than intestinal irrigation, they are of very great utility, particularly in the early stages of the attack. Only by them can we sweep downward the whole contents of the small intestine into the colon, where it can be reached from below. Castor oil, calomel, and the salines are the best. The oil is to be preferred in the subacute cases, where the stomach is very little or not at all upset. The dose must be liberal—a teaspoonful to an infant of six months, and this repeated in three hours. Calomel I usually order in tablet form in quarter-grain doses hourly, until six doses have been given. Of the salines, magnesia is to be preferred. The milk of magnesia is not usually vomited even by an irritable stomach, and may be given in teaspoonful doses hourly for four doses; or the solution of the citrate may be given in teaspoonful or tablespoonful doses every fifteen or twenty minutes until three or four ounces have been given.

In protracted cases there is an advantage in clearing the intestine once in four or five days with an active purgative.

Other Drugs.—The disposition to rely much upon drugs, especially of the class which are used to check intestinal discharges, is fortunately rapidly passing away. Opium, formerly given so large a place, should be restricted to the checking of exaggerated peristalsis after the character of the movements has ceased to be foul, and in fact has often become nearly normal. Small doses usually suffice for this purpose—*i.e.*, to an

infant of six months, five drops of paregoric every three to six hours.

I am still of the opinion that bismuth is useful in these cases, and have found none of the newer preparations superior to the commonly used subnitrate.

With reference to most of the other drugs used in these cases, I must say that to my mind their value is not yet proven.

Diet.—It is impossible in the limits of this article to give more than a brief summary of the principles of feeding these children. In the cases with an acute onset the importance of stopping at once all food, but especially milk, has already been referred to.

For twelve hours, or perhaps longer, all food should be withheld and only cool, boiled water given, but given liberally. Next there may be tried whey, thin barley-water, egg-albumen water, weak mutton or chicken broth; later, beef juice and some of the malted foods. No milk should be allowed for at least four or five days in milder cases, and in severe ones it must usually be withheld twice as long. When begun, it should be diluted five or six times with water, and preferably peptonized. To do much good in these cases peptonization must be complete (two hours), and it is best done before dilution. A laboratory formula for a three-months baby would be: fat, 0.50 or 0.75; sugar, 5.0; proteids, 0.50 or 0.60.

The hygienic treatment of these children is equally important with the measures mentioned above, and includes frequent bathing, both for the reduction of temperature and the allaying of nervous symptoms, and change of air whenever possible from the city to the seashore or mountains. Careful disinfection of napkins in institutions should always be practiced, or we are almost certain to see a spreading of the disease. To this cause and to overcrowding are to be attributed many epidemics in institutions where the question of previous feeding has received due attention.

After all, it is preventive, not curative, treatment which gives the most satisfaction to the physician. This should embrace:

1. A proper application of the well established rules regarding infant feeding; for it is chiefly infants who have previously suffered from digestive and nutritive disturbances arising from a violation of these rules who furnish us with our severe and most of our fatal cases.

2. Careful inspection of milk in cities, and the exclusion of that the temperature of which when received is 60° F. or above; and closer supervision of those who sell milk than is now employed.

3. The adoption of means by which the poor in cities may be furnished during the summer with milk sterilized under competent supervision, either free or at a nominal cost.

4. The general employment of Pasteurized or sterilized milk as an infant food during summer; Pasteurized, among the better classes, where the procedure can be more intelligently done and ice is abundant; but sterilized, among the poor and in tenements, or wherever no ice is to be had.

5. The avoidance of all solid food during the summer in children who are under eighteen months old.

6. The prompt and radical treatment of all the milder forms of indigestion and diarrhea during the hot season.

In our management of infants suffering from intestinal disorders, the great importance of the adoption of energetic measures *at the outset* cannot be too strongly emphasized. Doing the proper thing in the first twelve hours of an attack is vastly more valuable than correct treatment during the whole of the succeeding week.

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TREATMENT OF SUMMER DIARRHEA IN INFANTS.

By Louis Fischer, M.D.,
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It is a well known fact that children have a normal tendency to loose, liquid, and semi-liquid evacuations from the bowels. This is partly due to the anatomical condition of the intestinal tract, and secondly to the nature of the normal food—*i.e.*, breast milk.

The peristaltic movements in a child are very active owing to their physiological development. Young blood-vessels and the lymphatic vessels are very permeable, and the transformation of the surface cells is active and rapid.

The peripheral nerves are superficial, more so than in adults, whose mucous membrane and submucous tissues have undergone thickening by both normal development and mor-

bid processes. The action of the sphincter ani is not very powerful. The frequency of acids (sometimes normal) in the small intestine gives rise to the formation of alkaline salts with purgative properties. Free acids, when found in the intestine, show that (1) the quantity of food is too large; (2) the quantity of the digestive fluid is too small, causing fermentation instead of normal digestion.

The diastatic effect of pancreatic juice is limited at an early age and undigested material is carried off.

Colostrum secreted after birth is apt to give rise to diarrhea. Milk containing too much fat or too many salts, as in anemia, is liable to produce the same effect.

The etiological factors can be briefly outlined as follows:

1. Food, improper quantity and quality of the same, be it breast milk or hand-feeding. It is a well known fact, cited by Jacobi among others, that breast milk can also cause this disease.

2. The most frequent cause is certainly improper bottle-feeding, wherein food unsuited to the infant's digestive abilities is continued, in spite of nature's effort to warn us, as frequently manifested by either vomiting or diarrhea, or both.

3. Milk from mothers suffering with tuberculosis or syphilis. Pregnant women, menstruating and all anemic women, secrete such poor milk that gastroenteric derangements are exceedingly common.

4. The influence of the weather on digestion, especially the extreme heat of summer.

5. Improper disinfection of the nipples after feeding, and consequent decomposition and formation of microorganisms, causing infection; all unsanitary conditions deleterious to the healthy child.

Having noted the various causes of summer diarrhea, chief among which is improper feeding and its resultant diarrhea, the first thing to do is to cleanse the stomach and bowels. This can be most readily accomplished by

Stomach Washing.—To do this, I take a No. 10 soft flexible (rubber) catheter, having more than one opening, and attach it to either a two quart glass irrigator or a two-quart rubber fountain syringe. It is far better to use rubber tubing and a glass funnel, as we can then easily watch the liquid enter, and it is also more practical, as it can be kept clean more readily. For irrigating the stomach I use the following solution:

℞ Table salt, 1 teaspoonful;
Boiled water, 1 quart.

The above quantity for one washing, to be used until the gastric contents flow away clear. To introduce the tube, it is pushed through the mouth, gently but rapidly against the pharyngeal wall, into the esophagus, until the stomach is reached. It should not be anointed with oil, as we normally have so much mucus present that we have nature's own lubrication. The No. 10 tube is for a child between six months and one year of age. Having introduced the tube, I raise the irrigator or funnel or fountain syringe, which has been previously filled with one quart of the salt solution mentioned above, and hold the same about one to two feet over the child's head—no higher. The temperature of the water should be between 100° and 105° F. If there is severe irritability of the stomach, or a tendency to nausea and vomiting, then it is a safe plan to attach the catheter to a long tube, ending in a funnel, and using but one-half to one pint of the salt solution, allow it to enter the stomach slowly. By using the funnel we can siphon off the contents of the stomach by lowering the funnel below the level of the stomach. After emptying the same we can again fill the funnel, and allow the contents to flow into the stomach; and so this process of siphoning can be repeated until the gastric contents flow away fairly clean.

It is a good plan not to continue the washing of the stomach, unless urgent symptoms of gastric fermentation or possibly vomiting of food call for the same. It is my plan to wait at least one or two days and note the effect of the stomach washing before repeating it.

Having cleaned the stomach, it is a good plan to prescribe rest, and to insist on leaving the child several hours, without giving food of any kind. I usually order a small quantity of an alkaline water, either seltzer or Vichy, apollinaris water, or plain boiled (sterilized) water. A wineglassful of lime-water, several times a day, independent of food, is also advantageous.

In all forms of diarrhea milk must be discontinued. The details of feeding will be discussed later on.

When we find a decided objection on the part of the patients or their friends to the above method of cleansing the stomach, then we must resort to

Drug Treatment.—For this purpose a large dose of calomel, say one-fourth grain for a

child one year old, is given every two or three hours, until watery stools are produced, and this is followed on the succeeding day by two or three doses (a teaspoonful each) of castor oil. The tendency to constipation following a dose of castor oil makes it a valuable remedy in all forms of diarrhea. Bismuth is the sovereign remedy; I have used the subcarbonate, subnitrate, salicylate, and betanaphthol bismuth, and find the latter an extremely valuable preparation. In doses of two to five grains every few hours, mixed with a little boiled water, it not only agrees very well with children, but seems to exert a healing effect in that form of bacillary diarrhea which is met with in the acute catarrhal gastroenteritis.

Salol in doses of one, two, and three grains, for each year respectively, is another valuable remedy; so also is resorcin, in doses of one-fourth to one grain for a child one year old, three or four times a day. It is advisable not to add sugar for sweetening, but only glycerin; the latter, however, in very small quantities, as it has a tendency to loosen the bowels.

Nitrate of silver in doses of one-fiftieth of a grain for a child one year old, repeated every three or four hours, is valuable in some cases.

Tannalbin and tannigen in doses of from one to ten grains seem to act well in some cases, poorly in others, but are well worth trying in those desperate cases in which we change the drugs, if they are ineffectual.

Hypodermic Medication.—In forms of collapse, where constant diarrhea has drained the system, it is a good plan when the extremities are cold to give hypodermic injections of ten to twenty drops of whiskey. Sulphuric ether can also be administered hypodermically in the same dose as whiskey. Another valuable stimulant is musk; two to three drops of tincture of musk administered hypodermically every hour will frequently rouse the circulation.

When this form of treatment proves unsuccessful, and the condition of collapse continues, then a good plan is to resort to hypodermoclysis. This consists of introducing a long aspirating needle (previously sterilized by boiling) into the loose connective tissue of the abdomen, and allowing several pints of the normal saline solution, containing about 7½ grains of table salt to a pint of water, temperature 100° F., to flow in subcutaneously. It is remarkable to note how much liquid can be introduced in this manner, and some of the most violent of cases of collapse will respond very rapidly. I have seen children who previous to this injection were pulseless suddenly brighten up, and within a few minutes show a distinct radial pulse. Too much care cannot be bestowed on the sterilization of every part of the apparatus, and the absolute cleanliness of the water to be used for this purpose.

Rectal and Colon Flushing.—It is advisable to irrigate the colon and rectum by placing the child on its left side, introducing a flexible rubber tube and anointing with carbolized vaselin. Having passed the external sphincter, I invariably allow the water to flow into the rectum in order to balloon the same, and then continue to push the tube beyond the rectum into the colon. A little difficulty is sometimes encountered, owing to the spasmodic contraction of the muscles, but if we wait a short time, using a little patience, the tube can be easily pushed into the colon. The method pursued is the same as described previously in irrigating the stomach, excepting that we do not seek to siphon off the contents of the bowels, but rather allow a pint or a quart of the warm saline solution to flush the bowels, and in this manner wash away as much of the offending débris as exists within the bowels. I have frequently used cold water, but I find much greater benefit from the use of a warm solution of the temperature of 100° F.

Besides table-salt solution, a one-per-cent boracic acid solution can be used, so also can a 1-to-10,000 solution of bichloride of mercury. A solution of ten grains of tannic acid to a pint can also be used, and a 1-to-1000 solution of nitrate of silver is indicated in other cases.

Some of our cases require irrigation once in twenty-four hours for one week, and others again are so greatly improved after one rectal washing that it is not necessary to resort to it again.

Starch injections, made by adding two teaspoonfuls of the ordinary starch to a teacupful of warm water of a temperature of 105° F., may be given. They are very advantageous, as the colon changes starch into dextrin, which is easily absorbed. Thus not only does the latter cleanse, but it is also nutritious. Large quantities of saline solution can be introduced directly into the circulation by means of cold washing, thus adding to the volume of the blood. I therefore lay great stress on this form of treatment, as one of the most valuable for this depleting condition.

Thromboses can frequently be avoided by these injections.

When severe tenesmus exists, painting of the lower end of the rectum with a two-per-cent solution of cocaine is frequently very advantageous. Prolapse of the rectum and anus can frequently be prevented by applying a strip of rubber adhesive plaster from one buttock tightly to the other, so that the buttocks will support the bowel and mechanically prevent its protrusion.

Feeding.—Milk in all forms is to be discontinued for at least one week, unless the child is breast-fed, and if the latter, then the breast feeding should be stopped for at least one-half to one whole day, and instead barley-, rice-, or farina-water can be substituted, no matter what the age.

To make rice-, barley-, farina-, sago-, or cornstarch-water, take a tablespoonful of either of the above to a pint of water and allow it to boil a short time, then strain through cheese-cloth, and add enough boiled water to make one pint in all.

Flour Ball: A small bag made of cheese-cloth is to be filled with wheat flour, and suspended or immersed in a saucepan of water. This is to be boiled from six to twelve hours constantly. The flour becomes agglomerated into a hard mass, and is doughy only on the surface. It is then removed and allowed to dry, and after removal of the crust it is grated, and makes a whitish-yellow powder that is very nutritious. I usually commence with a teaspoonful to ten or twelve tablespoonfuls of water, with a pinch of salt and sugar, for one feeding. If it agrees well with the child, then I increase the quantity of the flour ball by adding a half-teaspoonful more every three days to the same quantity of water. If this agrees very well and the child seems to assimilate the food, then I usually, after one week of flour-ball feeding, substitute one ounce of cow's milk for one ounce of water, so that the formula would be one teaspoonful of flour ball, four ounces of water, one ounce of cow's milk, pinch of salt, and some lump sugar, for a child nine months old and older. This formula I have found eminently successful in the treatment of summer diarrhea, but I usually omit the milk.

A good plan is to feed with intervals of three and four hours between each meal, and if the usual amount of feeding was six or eight ounces, then it is a good plan to give but four or six ounces, or either rice-, barley-, or farina-water. Albumen-water, made by adding the white of a raw egg to a wine-glassful of sterilized water and a pinch of salt, is very good to allay thirst, besides adding to the nutrition of the child. Ice-cold tea (the ordinary black and green tea mixed) can be given *ad libitum.*

In using the starch enema for washing the bowel, the albumen of a raw egg, or the yolk of an egg or a few drops of expressed steak juice, can be safely added, provided we add a small quantity of pancreatin and bicarbonate of soda to predigest or peptonize it.

Hygienic Treatment.—Cold bathing or bathing in cold or lukewarm water, to which some sea salt has been added, is very advantageous; the child should be put into the largest and coolest room in the house, the temperature of which is from 68° to 75° F. If sea air is obtainable, then it is wise to remove the child to the seashore, or at least to insist on daily excursions.

Cold applications to the head and an ice-bag over the fontanel, cold towels changed every fifteen or thirty minutes over the abdomen, will tone up the nervous system in addition to reducing the temperature. I am a decided opponent to antipyretic drugs, and never use antipyrin or phenacetine, but invariably resort to hydropathic measures for the reduction of the temperature. Sponging of the body with alcohol and water is very grateful and refreshing, besides a good antipyretic measure. If cyanosis and cold extremities exist, then it is wise to resort to hot mustard baths, to stimulate the circulation.

The above is the plan that I have used and advocated for the last ten years. We cannot set up cast-iron rules; we must individualize and study each child's digestion, the stools, note the weight (scales) weekly, and follow carefully each change of food until we are satisfied that we have the proper form of diet.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

By Edwin E. Graham, M.D.,
Clinical Professor of Diseases of Children in the Jefferson Medical College; Member of the American Pediatric Society; President of the Philadelphia Pediatric Society.

During infancy and early childhood the mucous membranes are especially liable to become the seat of various lesions. The influence that dentition exerts is largely controlled by the child's physical condition. Healthy children often pass through this dangerous period without any symptoms ref-

erable to the appearance of the teeth. In delicate children dentition may and not uncommonly does aggravate the symptoms arising from any disease. In these children it must be remembered that the disorders occurring during the period of dentition may be due to this condition of weakened vitality and not to the teething *per se*. The diagnosis of teething diverts the mind of every one concerned from the vital subjects of food, air, and hygiene.

The non-specific directions concerning the feeding of children often left by the attending physician constitute also a factor that contributes largely to the so-called summer diseases, marasmus and teething diarrhea. The marked advances recently made in the feeding of infants and children, the advantages derived from the knowledge of how to give milk of specific percentage and the adapting of this percentage milk to the weakened digestive powers of the sick infant, is a matter of vital importance, and the results obtained are often favorable or otherwise in proportion to the skill displayed in this modification of the child's food to its weakened digestion and assimilation. It should be remembered that a nervous woman, overworked and worried by household cares, cannot supply suitable milk for a child. Under such conditions rest for body and mind, with systematic outdoor exercise and wholesome food, and an abundance of undisturbed sleep, will often accomplish wonders. The diet of the nursing mother should be carefully supervised. Excessive drinking of tea, coffee, or alcoholic stimulants, the eating of dainties, overeating, especially common in wet-nurses who from the change in their surroundings (from poverty to abundance) often are led to eat to excess — all these are factors which count against the rapid convalescence of infants ill from any gastrointestinal disorder.

In the selection of a wet-nurse one should be careful to exclude all possibilities of syphilis and tuberculosis; she should be between twenty-three and thirty-five years of age, of a quiet, even temperament, and her breasts should be well formed, hard, and firm, the milk flowing readily upon light pressure, and, when possible, its quality should be determined by chemical analysis. Much can be learned by seeing the wet-nurse's own child, as its condition, whether weak or strong, points accordingly to a poor or good supply of breast milk. The knowledge that milk is a most fertile culture medium for germs of all kinds, that milk is sterile as it leaves the healthy cow, and that as ordinarily received it contains dirt and filth from the cow's udder and the milker's hands, that it is rarely or never free from germs, and that numerous cases of diarrheal disease have been traced to the milk supply, should certainly cause both patient and physician to insist on the establishment of dairies from which clean and good milk is obtainable. Cases of continued malnutrition following severe diarrheal diseases are often with advantage given non-Pasteurized milk. The plan suggested by Seibert, of filtering the milk through a thickness of one-quarter of an inch of moist cotton, is sufficient to remove not only all impurities, such as dust, dirt, cow's dung, etc., but also about seven-eighths of the germs contained therein before filtration. The filtration alters little if any the amount of fat, proteid, and sugar present. Care must be taken to allow the first few tablespoonfuls filtered to escape, as this part of the milk contains a large proportion of the germs that escape removal.

Barley-water, lime-water, and sterile water are used as diluents of milk, the two last mentioned being preferable during the acute stages of the summer diseases, the barley-water being of service during the period of convalescence for infants after their ninth month.

Breast-fed babies during the acute stages may be given a small quantity of sterile water just before nursing, or the milk pumped from the breast may be diluted and given. If such milk is retained I believe more rapid results are usually secured than when breast milk is withdrawn, although many cases are benefited by a complete withdrawal of milk for the first few days.

Peptonization is often of signal service; we can by its help relieve the strain upon the digestive apparatus and still give a fair or adequate amount of nourishment.

The influence, etiologically, that microorganisms exert in the production of the summer diarrhea of infancy is admitted by all. The worst and most rapidly fatal cases often show post mortem but very slight lesions, and cases that from a clinical standpoint may seem very light often show post mortem extensive pathological changes. Some of the forms of diarrhea are undoubtedly infectious. Clinically we see cases with marked nervous symptoms, high fever, severe diarrhea, and rapid emaciation ending fatally, and the autopsy reveals very slight lesions. The conviction is forced on one

that these cases are due to the absorption of toxic substances produced by bacteria, the microorganisms reaching the intestinal tract mainly through the food.

The function of digestion and absorption must not, however, be overlooked, and proper hygienic, dietetic, and medicinal treatment must be combined with suitable antiseptic remedies. It is to be remembered that intestinal digestion is of much greater importance to the baby than stomachic digestion, the digestion of milk being largely accomplished in the small bowel.

The Treatment of Acute Intestinal Indigestion, or, as it is often called, Simple Diarrhea.—Prophylaxis includes what has been said earlier in this article on infant feeding. Overfeeding, improper food, or the quality of the food may be at fault. Children from six to eighteen months of age are especially liable, as weaning, bottle-feeding, and the second summer all fall within this period. All means employed to improve the hygienic conditions of the food are important. Removing the children from damp, poorly ventilated rooms to the open squares, or better to the country or seashore for a few weeks, or a daily visit to one of the free sanitariums now usually found near all large cities, is of distinct advantage. A weakened physical condition is a distinct predisposing cause, the healthy baby being less susceptible to diarrhea than the weaker one.

As by far the greater number of cases of summer diarrhea begin as acute intestinal indigestion, the prompt treatment of this condition becomes a matter of great importance. Undigested and decomposing food is always present in the bowel, and in the acute cases inflammatory changes in the intestinal mucous membrane are not present. Hyperemia and an increased secretion of mucus are usually all that exist. As a rule, to which one occasionally finds marked exceptions, it is found that the longer the disease has existed and the more marked the symptoms, the greater are the pathological findings in the bowel, the lower ileum and colon being the common seat of such inflammatory changes. Absolute rest should be insisted upon; infants, if fretful, may be carried on a hair-pillow; older children should be kept in bed. All soiled diapers should be removed from the room and washed in an antiseptic solution. The child if possible should be removed to good hygienic surroundings, and a tepid bath be given every day. During the warmest hours of the day the child should preferably be kept in a cool, darkened room. In the cooler hours of the morning, afternoon, and evening, keep the baby out-of-doors in the baby coach rather than on the lap. Fresh air is very important for these cases, and the presence of fever is not sufficient cause for keeping the infant indoors. The clothing should be loose, of light flannel or wool—a shirt, diaper, stockings, and long, loose outer garment being all that should be worn. Extra covering may be necessary at night. The room should be large and well ventilated, care being taken to protect the child from draft. During the first twelve or twenty-four hours the digestive organs should be given, if possible, absolute rest; this can only be accomplished by withdrawing food entirely and giving during this period small quantities of sterile water, one to two ounces every hour, to which five or ten drops of brandy may be occasionally added if much depression is present.

Breast-fed infants should be kept from the breast during the first twelve or twenty-four hours, when nursing may be cautiously resumed, the interval between nursings lengthened, and the time allowed for nursing shortened; and later may be given, before nursing or the breast, milk diluted as has been before mentioned. If vomiting is present to any marked degree, milk should, in the case of bottle-fed babies, be entirely withheld for a period of several days or more, and during this time the infant should be given freshly expressed beef juice, mutton broth, or beef broth, or albumen-water made by dissolving the white of one egg in half a pint of sterilized water. When the acute symptoms have largely disappeared, cow's milk greatly diluted or peptonized may be gradually substituted, and the proper diet according to age be slowly returned to.

In order to clear the bowel of fermenting, decomposing food, a laxative of castor oil two teaspoonfuls, or calomel one to two grains, may be given to a child one year old.

Salol and bismuth should now be administered, from four to six hours being allowed for the laxative to operate. Salol two grains, bismuth subnitrate ten grains, may be given every three hours to a child of one year. Opium may or may not be required; it is always to be given in a separate prescription, and only to be administered for two distinct reasons—to check excess of peristaltic action, and to relieve pain. To an infant of twelve months Dover's powder one-fourth grain, one-half minim of the deodorized tincture of

opium, or from six to eight drops of paregoric, may be given every two, four, or six hours as occasion demands. Salol and bismuth should be continued some days, the dose being gradually diminished, and the remedies not discontinued entirely until some days after all symptoms of the disease have disappeared.

Chronic Intestinal Indigestion, Chronic Enterocolitis, Chronic Diarrhea.—The prophylaxis includes all that has been previously mentioned on infant feeding, hygiene, fresh air, etc. Summer heat and a weakened constitutional condition are powerful predisposing causes. We have in this disease food in the intestine undergoing fermentation, causing continued irritation of the intestinal mucous membrane and resulting in inflammation, and not uncommonly in ulceration. The microorganisms present and the bacteria introduced with the food are factors tending to increase the inflammation already present in the lower ileum and colon. The prophylaxis of this disease therefore embraces the prompt treatment of acute intestinal indigestion and all acute inflammations of the intestinal tract, the prognosis being more unfavorable and the intestinal lesions more serious in proportion to the acuteness, severity, and frequency of the gastrointestinal symptoms that antedate the chronic condition. The treatment by diet follows the rules laid down for acute intestinal indigestion. Beef juice or animal broths may often with advantage be continued for some days, as their small bulk and slight residue in the bowel have little tendency to promote peristalsis or keep up fermentation.

Stimulants are usually required, ten to twenty drops of whiskey every two or three hours being generally sufficient. Opium does not occupy the same prominent position as in acute indigestion; it is especially useful in the acute exacerbations to relieve pain and check excess of peristalsis. It is to be given in a separate prescription and in the same doses as in acute intestinal indigestion. An occasional laxative is of advantage, as castor oil or calomel. Bismuth subnitrate ten grains, salol two grains, given for long periods, have in my hands proved the most successful drugs. Large doses of bismuth must be given to accomplish the desired result. Bismuth salicylate, five grains, is also in this disease a valuable drug.

Irrigation of the large bowel, carefully and thoroughly carried out each day with a fountain syringe and No. 12 catheter (not too flexible) is of decided benefit. A gallon of fluid should be employed for each irrigation, the liquid being at 98° to 100° F. Saline solution, boric acid solution, or nitrate of silver, 7½ grains to the gallon, have all in my hands been most useful. The child lies with the hips elevated; the catheter, well oiled, is allowed to gently pass six or eight inches up the bowel, the liquid being allowed to flow gently during its introduction, and the reservoir not raised more than three feet above the child's body.

In the more severe cases of chronic intestinal indigestion marked catarrhal or follicular inflammation of the lower ileum and upper colon is usually present, and follicular ulceration is not uncommon. Astringent enemata in these cases often do much good—*i.e.*, the saline or borax irrigation may be followed by six or eight ounces of water containing three drachms of bismuth subnitrate. Absolute control of the child's diet is essential to success, and the best hygiene, with plenty of fresh country or seashore air, is of importance.

Acute Ileocolitis, Summer Diarrhea.—This is the disease to which hundreds of children fall victims each summer. It is largely a disease of hot weather, and is rarely seen in cool weather except under bad hygienic surroundings. The lower part of the ileum is the seat of distinct inflammation, the most marked lesions being in the neighborhood of the ileocæcal valve. These lesions are largely due to the microorganisms present. Prophylaxis includes all that has been said previously in connection with diet, hygiene, bathing, clothing, etc., and the prompt treatment of every diarrhea, no matter how mild the attack. Milk is forbidden during the first few days, and beef juice or animal broths may be allowed during this period; preferably, however, nothing but sterile water with small doses of whiskey should be administered during the first twenty-four hours. In bottle-fed babies the prompt securing of a wet-nurse may be the only means of saving life. All soiled diapers should be washed in an antiseptic solution. The initial laxative is of advantage unless contraindicated by the child's extreme prostration.

Calomel in small doses, $\frac{1}{24}$ grain every two hours, especially if much nausea and vomiting are present, and given early in the disease, is one of our best remedies. It is rarely necessary to continue its use more than twenty-four to thirty-six hours at one time. Opium will be required in almost every case;

it is to be given according to the rules laid down earlier in this article. It should never be given in sufficient quantity to entirely check peristalsis. Hot flaxseed poultices applied to the abdomen for twenty-four hours, or a spice plaster kept in position long enough to well redden the skin, are helpful in relieving pain and checking vomiting.

Bismuth subnitrate is capable of doing much good; large doses must be given—two drachms to the usual twenty-four-hour amount required for a child twelve months old. Salol, two grains, may with advantage be combined with each dose of bismuth given. Bismuth salicylate five grains, benzonaphthol one grain, and naphthalin given in two-grain doses, have been used with benefit. Stimulants will be required in every case. The best antiseptic results are obtained by the external application of cold in the form of bathing or sponging.

The use of local treatment by means of irrigations is in this disease an absolute necessity; many cases are undoubtedly lost through a failure to appreciate their usefulness. The amount of liquid used—saline solution, boric acid solution, or nitrate of silver solution—must be large (a gallon), and the irrgations must be repeated daily. Enemata of ice-water, a pint repeated every few hours, are also of great benefit.

THE OPERATIVE TREATMENT OF WELL ADVANCED CARCINOMA OF THE UTERUS.

VEIT (*Berliner Klinische Wochenschrift*, No. 15, 1899), though placing little credence in the majority of published statistics, holds that certain of them offer conclusive evidence as to the number of permanent cures accomplished by radical operation in cases of uterine cancer. Among these he ranks Krukenberg's publication, in which it is stated that out of 149 collected cases operated on five years or more before the report, thirty-six were free of recurrence. Fraenkel states that 82 out of 230 cases were permanently cured. Hence it is perfectly evident that the disease must be ranked with those which offer a good prospect for entire removal. Krukenberg, however, personally told the author that he could note in his own service not more than eight per cent of cases free of recurrence for five years or more.

As a means of increasing the percentage of radical cures an early diagnosis, an operative technique which avoids the danger of infection, and an extensive operation are necessary.

A timely diagnosis is an element of the first importance in assuring a permanent cure. A cancroid of the vaginal portion occurs in early life, and malignant disease of the uterine body after the menopause. An early diagnosis of both these forms is not difficult, the former being characterized by bleeding on slight mechanical disturbance; the latter by a spontaneous bleeding after the menopause. Scrapings examined with the microscope usually give positive evidence. Cancerous nodules in the cervix, or infiltration of the cervical mucous membrane, are more difficult of detection; the latter causes a catarrhal discharge, the former simply pain in the sacrum, pressure, and similar vague symptoms. Bleeding does not occur early. Swelling of the cervix, particularly behind the external os, thickening and increased density, together with a certain patulousness of the os to the examining finger, combined with excision of a portion of the apparently diseased tissues for microscopical examination, may aid in making a diagnosis.

As to the question of operation when the disease has extended beyond the uterus, in the vast majority of cases this is hopeless, since a complete removal is impossible. The operation required is, moreover, so extensive that many patients will necessarily perish as an immediate consequence. The removal of the iliac and vertebral glands should always be practiced when these can be felt. At the best, operations upon these cases of widespread disease can save only an occasional one; hence the main hope of better statistics in operation for cancer lies in a more general, cultivated diagnostic skill.

RESECTION OF THE GREATER PART OF THE STOMACH FOR CANCER.

LANDOUZY (*Journal des Praticiens*, No. 11, 1899) reports the case of a woman, forty-one years old, who suffered for several months from a cancer of the pyloric region of the stomach. It was not ulcerating, but was easily accessible to palpation; it was the cause of incessant vomiting and rapid emaciation. The entire diseased area was resected, together with some neighboring involved ganglia. About three-fifths of the stomach was removed, and the remainder was connected with the jejunum. The patient recovered and was well four months later.

The Therapeutic Gazette

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Leading Articles.

A SYMPOSIUM ON THE SUMMER DIARRHEA OF INFANCY.

It has always been the endeavor of the THERAPEUTIC GAZETTE to present to its readers information which would be of actual value in daily practice, and with this object in view we have arranged this month for the publication of a series of papers in which the treatment of the summer diarrhea of infancy is discussed by physicians of wide experience both in private and hospital practice, who occupy teaching positions which qualify them to speak with authority.

It is of interest to note that all are agreed upon the necessity of carefully regulating the diet, even of nursing children who are suffering from this condition, and we are quite in accord with these contributors in insisting upon the withdrawal of milk until the digestive organs have an opportunity to rest and to get rid of any of the products of fermentation which may have resulted from the ingestion of improperly prepared or impure milk, or from temporary inability on the part of the digestive organs of the child to deal with its natural food.

THE EMPLOYMENT OF QUININE IN MALARIA.

If there is one therapeutic procedure more certainly fixed in the minds of modern clinicians than another, it is the employment of quinine as a specific in the treatment of malarial infection; and while we know that certain forms of the disease are conquered with greater difficulty than others by the use of this drug, the fact remains, as has been proved by indubitable clinical and experimental research, that quinine is *facile princeps* the remedy.

It seemed somewhat startling therefore when it was announced that Dock, of Ann Arbor, Michigan, proposed reading a paper, with the title similar to that heading this editorial, before the Section of Practice of Medicine of the American Medical Association, for it seemed that such a title indicated that we were not confident of the correctness of this method of treatment; but those who heard Dock's paper soon learned that there was no intention of doubting its usefulness, but that his endeavor was to indicate the proper employment of the drug in more minute detail than is commonly accorded it. In this respect we think he did a distinct service, for there can be no doubt that in many instances excessively large doses of quinine are administered. To be sure, certain types of fever require large doses, but on the other hand we fear that too often large doses are given of which only a part is immediately absorbed and only a part combats the malarial organism, while the greater portion is absorbed too late to be of any benefit, and may be not only useless but harmful.

It has been pointed out by some clinicians that in their opinion the best time to administer quinine is immediately after the paroxysm, as under these circumstances it acts as a distinct prophylactic in regard to subsequent attacks; and by others that it should be given four or five hours before an expected paroxysm, so that it may be absorbed and exercise its effect upon the malarial organism early enough to prevent the characteristic changes which are followed by such disastrous results to the patient.

It seems to us that neither one of these rules can be universally adhered to, and that the administration of the drug several hours before an expected attack is the correct method to employ in those patients which have widely separated attacks, every second or third day for example, whereas in the

quotidian type, or in any infection by the estivo-autumnal parasite, where in many cases fever of the remittent rather than the intermittent variety occurs, the administration of the drug during the period of decline is probably the more correct method.

In the discussion of Dr. Dock's paper it seemed to be universally agreed that a mercurial, or other hepatic stimulant, should precede the quinine. In regard to malarial hematuria, the conclusion seemed to be that in a certain number of cases, exactly what class it is difficult to determine, quinine is capable of doing harm, while in others it is capable of doing distinct good. The probable solution of this vexed question as to the administration of quinine in blackwater fever lies in the ability of physicians to make examinations of the blood for the malarial parasite. If the malarial parasite is present, the damage which it is capable of doing, aside from any condition of the urine, is sufficiently grave to justify the physician in administering quinine; but if, on the other hand, the malarial parasite is not found in the blood and the bloody urine is but a manifestation of malarial cachexia, associated perhaps with a chill due to other causes, then quinine has no indications for its use and is probably capable of doing harm.

An interesting question also arises in regard to the value of quinine when given hypodermically. It was suggested by one or two speakers that it be used in this way in those cases in which large doses are inadvisable and in which the condition of the stomach was such that quinine could not well be given, either because it would not be absorbed or because there is vomiting; but the editor of this journal suggested that one of the reasons why hypodermic injections of quinine were not satisfactory was that the drug was precipitated by the alkaline juices of the tissues, unless it was given in an acid solution, and being precipitated was so slowly absorbed that it really produced no effect upon the attack for which it was administered. It was also suggested by the writer that in urgent cases of malarial infection, when the parasite is found in the blood, the drug should be used according to Bacelli's method. In other words, the hydrochlorate of quinine should be dissolved in normal saline solution and injected intravenously into one of the veins of the lower extremities, as by this means any depressing effect which might be exercised by the quinine upon the heart would be avoided and instantaneous action upon the parasite would be accomplished. Of course, this method is not to be employed except in very urgent cases, nor is the hypodermic method to be used, since it is apt to be futile and produce much subcutaneous irritation.

Discussing these remarks, Dr. J. C. Wilson expressed his belief that the hypodermic use of quinine was advisable, but the further progress of the debate did not show that the others present agreed with him; indeed, on the contrary, hypodermic medication of quinine in malarial fever was not received with general approval.

THE TREATMENT OF ADVANCED TUBERCULOSIS.

There are few conditions which appeal to the sympathies of the physician more strongly than does advanced pulmonary tuberculosis, and there are few in which he is so powerless to do the patient much good. There comes a time, however, in the treatment of such a patient when it is the duty of the physician, who is utterly unable to restrain the progress of the disease, to do those things which will render the remaining days of life most comfortable and satisfactory to the patient and his friends, and undoubtedly in this late and hopeless period of the disease much can be done to relieve suffering and discomfort.

It is not our intention in this editorial to deal with all the measures which can be used under these circumstances. Personally we believe that an active normal liquid, or tincture, of cannabis indica, properly used, will very frequently, by benumbing disagreeable sensations and checking cough and improving the appetite, do the patient a great amount of good. The sweats, if they are profuse, can also be controlled by camphoric acid, and diarrhea relieved by pleasant astringent mixtures, while neuralgic pains can be relieved by a local application of menthol and similar substances.

A method which has found some popularity in France is the use of the combination of Hoffman's anodyne, extract of opium, and a syrup. Thus Castel prescribes the following mixture, all of which may be taken in twenty-four hours:

> Hoffman's anodyne, 6 drachms;
> Fluid extract of opium, 5 minims;
> Syrup of lettuce, 4 ounces.

One or two teaspoonfuls or more of this may be taken from four to eight times in the twenty-four hours with advantage.

This method of treatment has no particular disadvantage save perhaps that it might tend

to produce constipation, which is a disadvantage in those who are not suffering from diarrhea; but it is claimed that it also tends to check night sweats, that it increases the appetite, diminishes the cough and expectoration, relieves the dyspnea, and actually increases the weight. Nor is the effect solely to relieve and benumb; by its influence over tissue waste it probably actually aids the patient in maintaining his strength.

There is only one suggestion which we have to add to this, namely, that in those cases where the opium seems to produce nausea the following day it may be wise to employ morphine in place of the opium, and when the morphine seems to produce disagreeable after-effects to add to the mixture a small dose, say $\frac{1}{100}$ of a grain, of nitroglycerin, which in many cases may prevent the disagreeable after-effects of the opiate.

A NOTE IN REGARD TO THE TREATMENT OF OBESITY.

Not long since we were wont to regard obesity as dependent upon some unknown perverted physiological factor which was supposed to be practically identical in each case, but advances which have been made in the study of metabolism and in the influence of thyroid gland upon nutrition have proved that obesity may be due to many different causes, in some of which the use of thyroid gland, by correcting disordered metabolism, may give relief, while in others it fails to be of very material advantage.

An important point to be remembered in the administration of thyroid gland in the treatment of obesity is that this substance not only causes a great loss of hydrocarbons, but also that it very distinctly increases tissue waste in the nitrogenous substances of the body, and therefore, while it is being given to cases of obesity, their diet should be ample in the way of meats and similar nutritious food.

Exercise in many of these cases of obesity must be regulated with the greatest care, since often the heart power, while the thyroid gland is being taken, is not sufficiently strong to stand the severe exercise to which obese persons often subject themselves, with the false idea that it is the proper thing to do. Walking must be regular and moderate, and should be frequent rather than prolonged to the point of severe fatigue. Massage is often exceedingly valuable in these cases, as it aids in the circulation of the blood and tends to keep moving a large amount of the juices of the body. In some instances, probably those in which the thyroid will do the most good, the obesity seems to be distinctly a hereditary condition.

An interesting paper in reference to this fact has recently appeared in *La Presse Médicale* of May 24, 1899, by Chauffard. In this article he gives the genealogical tree of a family which suffered from hereditary obesity, and still another which suffered from obesity, gout, and diabetes; in other words, the family was one in which there was a perversion of the normal metabolic processes.

In one case, of a young man of thirty-four years suffering from hereditary obesity, death occurred from cardiac failure.

THE NECESSITY OF USING CAUTION IN PRESCRIBING CLIMATE AS A REMEDIAL AGENT.

In the midst of a large amount of study which has to be carried out by the modern medical student, it is very difficult to give him definite and clear ideas about remedial measures other than drugs, and there are few schools in the country which teach students the dominant facts in regard to climatology, balneology, and similar useful remedial processes. As a result of this lack of knowledge, many physicians are wofully ignorant and are unable to give their patients competent advice in regard to the climate which they should seek for the benefit of their health.

There are two classes of patients to which the question of climate is most important and in which bad advice is not only followed by no benefit but is fraught with danger, namely, patients suffering from pulmonary tuberculosis and others from renal disease. Physicians of experience who are in the habit of referring patients to climatic resorts are well aware of the fact that a moderately high altitude, dryness of the air, stillness and freedom from dust, with many hours of sunshine, are absolute necessities for the best results which are to be obtained, and that for renal cases a gentle balmy climate, with moderate temperature which is as near as possible constant, is an essential feature.

Too frequently physicians hold out vain hopes to patients in regard to what climate can do for them, and actually do not recognize the fact that after pulmonary and renal disease has advanced to a certain stage death is inevitable, and that very soon. Under these circumstances patients are advised or

permitted to leave their homes and make an endeavor to regain that health which is impossible, only to die from exhaustion on the journey or soon after arrival, and by reason of their large expenditures to leave those who are dependent upon them even more poverty-stricken than before.

We are glad to notice that the *Denver Medical Times* has in its May issue an editorial entitled "Patients Not Fit for Climatic Treatment in Colorado," in which the writer calls attention to the fact that many unfit patients are sent to that State who are so far gone that they die in the hospitals within three weeks after arrival, and a vivid description is given of how frequently the poor patient goes to Colorado with emaciated form, cyanotic lips, flushed cheeks, graveyard cough, and too often exhausted exchequer. He is unable to sleep in a recumbent position, develops edema of the feet, and unable to return alive, dies far from home in lonely misery.

As this editorial writer well says, if such patients are to go to Colorado, let them go if possible within a few weeks of the beginning of the cough, and if they cannot be sent before excessive destruction of the lung occurs, be merciful enough to let them remain at home surrounded by friends and home comforts during their last hours, that they may at least die in peace.

THE TREATMENT OF PULSATING EXOPHTHALMUS BY LIGATION OF THE CAROTID ARTERIES.

A pulsating exophthalmus, secondary to traumatism, is nearly always due to an injury of the internal carotid artery and cavernous sinus, mechanically so placed that the arterial blood passes directly into the lumen of the sinus. The increased blood-pressure resulting from this causes venous stasis.

Boden (*Deutsche Zeitschrift f. Chirurgie*, May, 1899) states that the symptoms of this injury develop in a shorter or longer time, depending upon whether the wound of the carotid is a small or a large one. Swelling of the eyelids, possibly such marked serous infiltration that the functions of the eye muscles are abolished, chemosis, and marked venous dilatation, are noted. The papilla becomes edematous, the retinal vessels are dilated, retinal bleeding is frequent, and the entire eyeball is pressed forward. The superior ophthalmic vein becomes dilated, incident to the increased pressure, and its walls are thicker. The pulsation of the eyeball can be both seen and felt. This venous dilatation may extend upward over the forehead. A bruit, continuous, with pulsatile exacerbations and often loud and distinct, can be heard, and the patient commonly complains of a beating headache, and failure of vision. The lesion is often bilateral.

As to the treatment, the patient should be put to bed and kept under the influence of narcotics, when the communication between the artery and vein is very small. Under such circumstances the opening may close under the "rest treatment."

Compression of the common carotid artery is a means of treatment which naturally suggests itself. The artery is accessible, and by firm pressure upon it a condition of blood stasis is encouraged which favors the formation of an occluding clot. Instrumental pressure is, however, practically impossible, while digital pressure has proven inefficient and extremely painful.

The oldest treatment still remains the best —that is, the ligature of the common carotid of the affected side. In a case reported by Boden, this operation was followed by immediate relief of the unbearable headache, by return to normal vision, and by recovery from all symptoms. It often occurs that ligation of the artery of one side is not efficient. A collateral circulation in the case of unilateral ligation is supplied by the vertebral arteries, by the carotid of the other side, and by the anastomosis between the superior and inferior thyroids. If this collateral circulation develops too quickly, insufficient time for the organization of the thrombus is allowed, and symptoms recur, in which case ligation of the carotid of the other side is indicated.

Of fifty-two collected cases of unilateral ligation of the common carotid artery for pulsating exophthalmus, twenty-six were cured, twenty were improved, six were not improved—that is, eighty per cent were either cured or improved. In six of the cases, because the operation was undertaken too late, the sight of the eye was not restored.

Concerning the mortality of the operation —ten per cent—this is distinctly high. Three cases perished of sepsis, two of hemorrhage, and in one the cause of death was undiscovered. Thus, in five out of the six fatal cases, death could have been averted by a more careful and modern technique.

Both common carotids have been ligated for pulsating exophthalmus six times. In

the first case an interval of fourteen months elapsed between the two ligations. The vision of the eye was lost. In the second case an interval of a month elapsed between the two ligations. Four weeks later the patient was entirely well, and the power of vision was markedly increased. In the third case an interval of about two months elapsed between the two ligations. The cure was a complete one. In the fourth case the result was uncertain. In the fifth case an interval of sixty days elapsed between the two operations. The patient gradually improved, and after a year was almost well.

The sixth case is reported by Boden. The patient had received a blow on the skull, and four months later presented himself with the characteristic symptoms affecting the right eye. The right carotid was ligated under Schleich's anesthesia and divided between ligatures. A month later, after five days' digital pressure, the left common carotid was ligated. There was no immediate relief from pain, and though the pulsation was diminished, it was still persistent. The bruit could he made to disappear by pressing on the left external carotid, the left superior thyroid, or the right external carotid. The head pains got better after a time, but recurred with almost their original violence. A mass of blood-vessels, the size of a hazelnut, placed on the orbital margin and pulsating markedly, if pressed upon, caused a cessation in both the headache and the bruit. Guided by this fact Dollinger made an incision along the upper orbital border, and after ligation of a number of smaller veins, exposed the superior orbital vein (which was as large as a lead-pencil) and placed a thread about it. Thereafter all subjective symptoms ceased.

In case bilateral carotid ligation fails to cure the pain, bruit, and pulsation of the arteriovenous aneurism, there is still left a complete cleaning out of the orbital contents, a procedure less severe than it at first seems, if it be recalled that vision is commonly destroyed by the disease when unchecked.

THE DIAGNOSTIC VALUE OF RENAL PERMEABILITY TO METHYL BLUE IN SURGICAL AFFECTIONS OF THE KIDNEY.

Since the chemical and physiological examination of the urine determines simply the ingredients of this fluid and their toxicity, throwing only an indirect light upon the question as to the amount of toxic substance retained in the blood, incident to imperfect functioning of the kidney, any method that will enlighten us as to the eliminating power of this organ must necessarily be extremely valuable, not only to the physician but to the surgeon, whose judgment as to the advisability of operation must often depend largely upon the dependence he can place in the depurative action of the kidneys. An attempt has been made to determine what has been called the permeability of the kidneys, by examining the urine for various substances easy of chemical recognition, which when taken into the system are eliminated by the kidneys.

Undoubtedly the best of these means of investigation is that proposed by Achard and Castaigne, who in 1897 endeavored, by the injection of methyl blue into the subcutaneous cellular tissues and subsequent urinary examination, to determine the renal permeability. They found that in nephritis the elimination was retarded.

This observation was corroborated by others, but Bard observed that while this retardation was observable in some cases of nephritis, in others the appearance of the blue in the urine was precocious. It was also noted that the methyl blue was sometimes eliminated in the form of a leuko-derivative, called chromogene.

Chaufard called attention to the fact that the elimination sometimes appeared in the form of a continuous cycle—that is, there was a regular increase in the quantity observed until the maximum was reached, then a regular diminution. At other times elimination was continuous but polycyclic—that is, the blue was passed irregularly, sometimes in large quantities, sometimes in small quantities; finally it might be passed intermittently, the urine in the intervals containing none of the coloring matter. Achard and Castaigne note that the prolongation of the elimination is a sign of renal impermeability.

Albarran and Bernard (*Annales des Maladies des Organes Génito-Urinaires*, No. 4, 1899), noting that few authors have systematically studied the results to be obtained by this method in surgical affections, have carefully investigated five cases of pyonephrosis, two of hydronephrosis, two of renal tuberculosis, two of renal neoplasms, three of single kidneys left after ablation of the organs of the opposite side, nine cases of pyelonephritis, and one case of reflex polyuria.

The method of procedure was as follows: Fifteen minims of a five-per-cent solution of methyl blue was injected deep into the thigh or loin, the bladder having previously been emptied. Thirty minutes after injection the urine was collected in a glass, and this collection was repeated every half-hour until blue coloration was noted, from which period the collection was made every two hours until the elimination ceased. The blue was extracted by means of chloroform, after which the remaining liquid was examined for chromogene. Careful chemical examination of the urine was also made at the same time. In all cases of unilateral lesions the ureters were catheterized, and the urine from each kidney taken separately. The cases are reported in full with ingenious charts.

As a result of this study, Albarran and Bernard note that renal permeability is not a physiological entity, but that the kidney exerts an elective action, each substance possessing its own coefficient of elimination. The various substances used in experimental work have not always shown a concordant elimination. The methyl blue method is, within limits, capable of suggesting the existence of marked disturbances of the renal function; but the findings of this method in themselves are not safe indices as to either the nature or the degree of the renal lesions.

The most important factor in the elimination of methyl blue is its intensity. A permeable kidney lets coloring matter pass in large quantity; an impermeable kidney lets it pass in small quantity. This is the most reliable and important indication given by the method.

The delay in the appearance of the color is not to be trusted as a sign of kidney involvement. The elimination is commonly slow in a crippled kidney, but not always so.

The time during which elimination continues has some relation to the existence of compensating hypertrophy, either anatomical or histological. Thus there is a prolonged period of elimination in interstitial nephritis.

The progress of the elimination does not seem to give any clear indications. In pyelonephritis the elimination may take place in the form of chromogene, or it may be of methyl blue and chromogene disassociated, or these two elements may be eliminated together. This form of elimination suggests neither the nature nor the degree of the renal lesions, it simply indicates the existence of kidney complications.

In blocked kidney the elimination is delayed, lasts but a short time, and is very moderate in quantity. These departures from normal are proportionate to the kidney lesions.

In caseating renal tuberculosis the kidney may be perfectly impermeable to the blue. In such affections the kidney of the opposite side exhibits a precocious, prolonged, and abundant elimination. Renal neoplasms seem to have no effect on elimination.

The authors insist upon the importance of ureteral catheterization in all these studies, and hold that for the diagnosis and prognosis of unilateral surgical affections of the kidneys the method of Achard is of distinct service, but only when it is associated with ureter catheterization.

This communication is of very great value. The study has been so carefully conducted that it can be open only to the criticism that the conclusions are drawn from a somewhat limited number of cases. While disposing of the exaggerated claims at one time made for this method of diagnosis, it shows that it is by no means worthless; and in spite of recent papers upon the uselessness of the methyl blue injections as aids in the diagnosis of kidney affection, the conclusions of Albarran and Bernard are likely to be received as authoritative. They are unfortunately based upon a technique which is practicable to very few of our practitioners.

Reports on Therapeutic Progress

DISINFECTION OF THE MOUTH.

The *Scottish Medical Journal* for April, 1899, has in it a paper on this subject by MAYLARD. He says his object in writing this paper is to try and prove that the upper part of the alimentary canal, and more particularly the mouth and fauces, may prove a very ready receptacle for noxious material, which may subsequently find its way into the system. The facility with which septic or pathogenic substances will gain an entrance into the lymphatic channels will no doubt be very largely influenced by the condition of the lining mucous membrane; in other words, decayed teeth, ulcers, fissures, abrasions, or inflamed surfaces will very materially help to let infective material into the lymphatics.

If further reasons were required to support the belief that the mouth and fauces play an important rôle in certain diseases, it would be found in the usually accepted opinion that

diphtheria, scarlet fever, and quinsy have their initial symptoms in affections of the fauces. Dr. Maylard says he might add, for whatever value may be attached to it in this connection, a story which he recently heard told of a medical officer of health of one of the great provincial cities. He had been asked by two medical men to see a case which they strongly suspected was one of typhus. The medical officer verified the diagnosis without any doubt, and on leaving the patient commenced to spit, stating at the same time that it was his custom to continue to do so for the space of an hour after being in the presence of such a class of cases. This respected officer, whose peculiar and special function it was to prevent the spread of infection, and to adopt all such measures as should conduce to the welfare of the community whose general health formed his special department, evidently forgot that in ridding himself of the infective material, which he conceived it possible might get into his mouth, he was employing a method most conducive to the spread of the disease. Perhaps the simple precautionary measures to be presently described might suggest a better means of protecting the individual, while it would not endanger the community.

If, then, as there seems very little doubt, certain recognized specific conditions owe their origin to infection conveyed by or through the lining walls of the upper alimentary tract, may we not with some just reason conclude that even other diseases, the true source of which we cannot trace, may have their origin in the same way? Certainly there is no part of the whole body where infectious material, whether it be microbic or otherwise, can find such advantageous collecting and resting-places as is afforded by the many dental crevices or mucous membrane folds of the mouth and fauces; where, too, microorganisms can develop and multiply almost unimpeded. Unlike the stomach and intestines, where there is the gastric juice and the bile, the mouth possesses no similar secretion capable of neutralizing or inhibiting the effects of noxious material, for the saliva has probably no influence in this direction. That decaying teeth may prove a source of infection is probable, but they cannot be a very fertile source, when it is considered how many people have bad teeth, and what a comparatively few have enlargement of the cervical glands or other manifestations of disease. The probable reason of this exemption, no doubt, is that the cavity of a decayed tooth is such a hotbed of stinking saprophytic microbes that it proves more than the refined and sensitive cocci and bacilli of disease can stand. No tubercular bacilli could certainly thrive in such a soil, and that is probably the reason that the mouth is so remarkably free from local manifestations of tuberculosis, when, through the ingestion of uncooked milk and infected meats, so many opportunities are afforded for its being so.

If the above remarks have any cogency, they certainly point to the need of adopting some measures which will lessen the possibility of infection by the mouth. It may seem like descending to a very low and homely standard of precaution to touch upon such simple personal matters as the daily cleansing of the teeth with a brush. But there is a great deal more involved in that simple process than the mere supposed endeavor to keep the teeth white on their anterior or labial surface. The efficient scrubbing with a brush cleans out many of the little holes and corners in and between the teeth where infective material can lodge. The process of freely rinsing the mouth also serves to mechanically dislodge stagnant material in other parts. He would therefore not think lightly of this simple daily practice, which, however frequently adopted, should never be omitted at night. But he says he need hardly point out that by disinfection of the mouth he means a good deal more than this. When from any cause there is some lesion of the lining membrane of the mouth, either of the nature of a traumatic abrasion, an ulcer, an inflamed mucous surface, or a decayed tooth, the mouth should be freely rinsed with some antiseptic solution. He knows of none better than a weak solution of Condy's fluid; it is not distasteful, and a strong solution of it can be kept ready for dilution to the required strength. Doubtless those possessing sound and healthy constitutions, and not exposed to sources of infection, need but little to take protective precautions; but where the opposite conditions exist, he does not think too great care can be exercised. Wherever there is a known tubercular predisposition there should be certainly the utmost care taken both to cleanse and disinfect the mouth. When also there is exposure to certain infective diseases, more particularly to those of diphtheria, scarlet fever, and possibly typhus, the mouth should certainly be well disinfected after exposure to infection.

There is yet a somewhat different class of

cases, which manifests unmistakable evidence that the mouth is capable of supplying infectious material to distant parts. The author has frequently noticed—or, rather, he at one time did, for now he takes precautions to avoid it—that after exercising cervical glands under the strictest antiseptic precautions, and where previous to operation there had been no broken skin or sinus leading from the glands to the skin surface, infection of the wound took place if he attempted to completely close it. It was not the result of tension, but, he believes, the infection of the wound through the divided afferent lymphatics, which still were capable of conveying septic material from the mouth. To prevent this a portion of the wound should be stuffed with sterilized gauze, the remaining part being stitched, if deemed advisable. The mouth should be frequently rinsed with weak Condy's fluid, and always after food. How potent the cleansing properties of this fluid are he has frequently seen illustrated in cases where operations have been performed upon the mouth—such, for example, as excision of the tongue or parts of the jaw, where by its frequent and free use inflammation is checked and the parts kept, as we say, perfectly sweet.

ON THE PREVENTION OF VALVULAR DISEASE OF THE HEART.

The *Edinburgh Medical Journal* for April, 1899, contains an article by CATON upon this most important theme. He thinks that at the present time most members of our profession regard such effort as this as a hopeless task. In the spirit of the fatalist Moslem, they believe that if heart complication comes, it comes; it may possibly subside, though usually it does not, and they conceive themselves powerless to influence it. This, Dr. Caton says, was his belief and practice during the first dozen years of his professional career, but eighteen subsequent years of observation, directed especially to this question, have securely founded the conviction that much may be done to prevent and to arrest rheumatic endocarditis. So clearly has the good to be done become evident in his eyes, that he should now feel it a distinctly immoral action on his own part to omit certain precautions and certain methods of treatment.

1. *As Regards Methods of Prevention.*—Rheumatism, when once existing, seems to be aggravated by exposure to cold, and by checking (through chills) the profuse perspiration incident to the ailment; this is probably the opinion of most physicians. Caton keeps in his wards a stock of warm flannel garments expressly for the use of these cases. Every patient is clothed from head to foot in warm flannel (with sufficient changes of the same) during the whole of the acute period. He is kept in the most absolute rest in bed. He is usually treated with gentle cholagogues and with one of the ordinary salicylate preparations; the diet is a light and simple one, excluding for a considerable time all red meat. The heart is examined daily. If the pain fails to yield in any joint it is quickly dispelled by the use of one or two small blisters applied locally, and followed by poultices.

Any one who has tried Dr. Herbert Davies' method of treating rheumatism by small blisters to the joints knows how effective that treatment is.

Usually without this adjuvant, however, the pain and fever speedily subside, but to prevent relapse and endocardial trouble, Dr. Caton always maintains the remaining treatment, with the exception perhaps of slacking off the salicylate. The prolonged rest, warmth, and quiet seem to him very important as means for preventing mischief, for cardiac trouble not infrequently tends to come on late—even after all pyrexia is over. Under this treatment eighty-two or eighty-three per cent of his cases get well without any cardiac trouble at all. The remaining seventeen or eighteen per cent who are attacked form, he thinks, a low average.

2. *Efforts to Arrest Cardiac Valvular Mischief when it has Begun.*—If endocarditis shows itself by the development of an apex bruit, and by accentuation of the second sound at the pulmonary valve, or more rarely by a bruit at the aorta, the author adopts the measure which is found effective for a refractory joint, namely, the application of small blisters, along with other means. To all appearance the salicylates have little or no beneficial effect on cardiac rheumatism.

The reader may probably ask the question: Is there evidence that stimulation of the surface skin can in any way influence organs lying in the body cavity? All will agree that there can be no direct influence. If there is any effect at all it must be by a reflection through the spinal or sympathetic ganglia, via intercostal and visceral nerves. Is it possible that counter-irritation through these channels can do for the heart what it undoubtedly does for the joints? In reply Dr. Caton says

he can only give proof that certain nerve impulses do travel round by this route. Laborious laboratory experiments gave distinct evidence that stimulation of the thoracic integument produced certain changes in the viscera beneath. Space will not allow him to state details, but he says, in a paper read before the Physiological Society at Oxford, he showed that stimulation, either thermal, electrical, mechanical, or chemical, of the thoracic skin produced changes in the caliber of the arterioles of the lung, also that similar stimulation modified the electrical potential of the intestinal wall, as shown by the galvanometer. These experiments did not prove any therapeutic influence—it would scarcely be possible to prove that by such a method—but they prove that an influence was transmitted round by the nerve communications extending between the surface skin and the organs within. By analogy it may fairly be assumed that likewise a trophic effect, a stimulation of nutritive processes, may be expected to follow such stimulation in an organ whose nutrition was perverted. Familiar examples of such an action might be quoted—*e.g.*, what obstetrician does not know the effect of a sudden dash of cold water on the thoracic skin of a new-born child in quickening respiration? In a faint, is not a like application of avail in stimulating the heart?

The treatment Dr. Caton is advocating is in part founded upon this theory. As soon as a bruit is perceptible—in fact, as soon even as what the French call *assourdissement*, the muffling of the first sound at the apex, occurs, which is the usual precursor of the bruit—he applies in the course of the third, fourth, fifth, or sixth intercostal nerve small blisters not much larger than a shilling, in succession, one at a time. They give little pain or inconvenience. The patient is kept in bed, absolutely recumbent and as quiet as possible, for several weeks. It is important in his judgment to keep the heart's action as quiet as possible. Moreover, he gives in addition to the salicylates eight- or ten-grain doses of sodium or potassium iodide thrice daily. This is given in the hope that it may help to absorb inflammatory products.

ON THE VALUE OF MILK WHEY IN INFANT FEEDING.

ASHBY writes on this topic in the *Edinburgh Medical Journal* for April, 1899.

Whey has been used, time out of mind, as a substitute for whole milk for the infant, when digestion was at a low ebb. It must early have been recognized that cow's milk curdled in the stomach into masses of sour-smelling curd, upon which the digestive juices were apt to spend themselves in vain, and these were either ejected by vomiting or passed in the feces. Under these circumstances whey was a useful temporary resort, the vomiting or diarrhea ceased, and the digestive powers might be coaxed back into their normal condition.

Dr. Ashby is inclined to think that, at the present time, the value of whey for infant feeding is often overlooked or forgotten, a result no doubt due to the fact that so many tinned or bottled infants' foods—of the "perfect substitute for mother's milk" sort—are extensively advertised by their makers, and our more homely milk modifications have been thrown into the shade. But surely no sane individual can ever claim that milk which has been dried, "tinned," and stocked, can ever again be made to yield a fluid that can compare with fresh milk or milk whey as a food.

Some years ago Frankland suggested whey as a diluent for milk, and gave directions for the preparation of "humanized" milk—*i.e.*, a mixture which resembles woman's milk in the percentage of its constituents—by mixing together certain proportions of cream and whey. Since then "humanized" milk has been manufactured on a large scale by mixing cream, milk, and sugar-water in various proportions, sterilizing, and sending out in bottles. Dr. Ashby doubts very much if the manufactured article, which is mostly overheated to make it keep good for months, is as good a food as can be made at home by mixing cream, or milk and whey, and using it fresh. There are comparatively few of us within easy reach of a Walker-Gordon laboratory, where we can have any formula for a milk food made up and delivered daily with an exactness we cannot imitate in the household; but we have to depend upon home-made modifications. The temptation, no doubt, is great to fall back upon a manufactured food; it is so much easier to take a spoonful of powder out of a bottle or tin and stir it up with warm water, when the infant has to be fed, than to set aside milk to cream and to prepare the whey. But it is worth all the trouble and time expended on its preparation.

When "rennin" or essence of rennet is added to warm milk, the proteid in the milk—namely, caseinogen—is split up into insoluble proteid casein and "whey proteid," the latter being unaltered either by "rennin"

or heat. The casein is precipitated in company with the fat, leaving the whey proteid, lactalbumin, lactose, and salts in solution. When whey is made, as in cheese-making, it is desirable that it should contain as little fat as possible, as the fat is wanted to enrich the cheese. The following is the percentage composition of whey as given by several authorities:

	Proteids.	Fat.	Lactose.	Salts.	Water.
Koenig	.85	.23	4.71	.65	93.24
Bauer	.82	.24	4.65	.65	93 3
Benger	.8	.16	....	.65	.....

But when whey is required as a food, it is clearly desirable that at least some of the fat should be retained in the whey, and not be rejected with the curd. This may be effected by a thorough agitation of the curd before straining. Perhaps the most ready way of preparing whey for infant feeding is to use Hawksley's sterilizing apparatus, as it is provided with a thermometer, and consequently the temperature can be regulated. Thirty ounces of good fresh milk is placed in the bottle provided, and the heat raised to 104° F.; add two teaspoonfuls of pepsin cordial, and set aside for a few minutes. When the curdling has taken place, thoroughly break up the curd by stirring and shaking the bottle; then strain through fine muslin or a colander. In this way 22 or 23 ounces of an opalescent fluid is obtained, which should be heated to 160° F. for twenty minutes, in order to destroy the rennin. It may require a further straining, as more curd is apt to form on heating. Mr. F. Baden Benger, F.C.S., was good enough to make some analyses of whey prepared in this way. He found on an average that the whey contained 97 per cent of proteids, 2 per cent of fat, and 6.1 per cent of salts, the amount of fat being much larger than in whey prepared by simply draining the whey off the curd without agitation. Centrifugalizing, in Gerber's acid butyrometer, the whey prepared in the wards of the Children's Hospital, he found an average of 1.75 to 2 per cent of fat.

Whey prepared in this way, with or without an addition of two or three drachms of milk-sugar to the pint, makes a useful food for newly-born infants who have to be artificially fed, or for infants who suffer from chronic vomiting, or have liquid, green, and curdy stools. They will gain weight and be more comfortable than when taking diluted milk. A weak "humanized" milk may be made by adding 10 ounces of fresh milk to 20 ounces of sterilized whey, and adding ½ ounce of milk-sugar. To make a "humanized" milk more rich in fat, use "top-milk" in the same proportion. Let a quart of fresh milk stand in a covered glass jar in a cold place for four or five hours; remove the upper 10 ounces by skimming, and add this to 20 ounces of sterilized whey with ½ ounce of milk-sugar.

If these mixtures are carefully made according to directions, perfectly fresh milk of a good average quality being used, the analysis will work out something like the following; but exactness cannot be expected, inasmuch as milk varies in the amount of fat it contains and the time it takes to cream:

	Proteids.	Fat.	Lactose.	Salts.
Human milk, average.	1.75	3.5	6	.3
Whey	.8	2	4.5	.6
Milk, 10 oz. Whey, 20 oz. Lactose, ½ oz.	1.75	2.5	6	.6
Cream (8%), 10 oz. Whey, 20 oz. Lactose, ½ oz. ...	1.75	4	6	.6

It is always well to add a grain or two of bicarbonate of sodium to render the mixtures neutral or slightly alkaline.

It is often convenient to give dyspeptic infants whey at first, or even dilute the whey with a solution of maltose or barley-water, as such infants cannot always digest as much as two per cent of fat in their food. As they improve, add milk to the whey, or "top-milk," as their digestive powers gain strength.

It may be asked, what advantage has whey over a solution of lactose as a diluent? It certainly contains "antiscorbutic" properties, which a solution of milk-sugar does not, and, moreover, it contains soluble proteids and a certain amount of fat. Dr. Ashby has frequently found infants improve and gain in weight after whey has been substituted for sugar-water or barley-water as a diluent for milk, and his experience is strongly in its favor. But more than the average intelligence is wanted in the nursery to carry out details.

FEVERS IN CHILDREN; THEIR SIGNIFICANCE, GENERAL DIAGNOSTIC VALUE, AND ANTIPYRETIC TREATMENT.

The *Archives of Pediatrics* for April, 1899, has in it an article by S. S. ADAMS upon this

subject which is of interest. In speaking of the treatment of fevers he tells us that this may be done by the administration of internal antipyretics, in the use of which great harm often occurs. It is true that by a good dose of antipyrin, acetanilid, or phenacetine, we can reduce the temperature and make the child apparently better. The parents are satisfied, and we may think we have accomplished something; but what is the result? The effect of internal antipyretics is transitory, and consequently we must resort to one of two things—either allow the temperature to return to its former height, or reduce it by the further administration of powerful antipyretics. In this way we not only confuse the diagnosis, but do much more, for such drugs exert a violent and paralyzing effect on the heart.

Dr. Adams says he does not mean to decry the judicious administration of them, but he believes that antipyrin, in the hands of even the most skilful, is a most dangerous drug. He has seen the ill effects of it, and the apparent good effects. He has seen a child wildly delirious from croupous pneumonia made rational by a dose of antipyrin, so that it could sit up in bed and chat with its parents, but he has seen the same child relapse into a condition of high temperature within twenty-four hours because the heart had never regained the tonicity which it had had prior to the violent reduction of the temperature by antipyrin. His experience with acetanilid is similar. With phenacetine he has had a little more favorable results. Of the internal antipyretics it is one of the safest, but it should be given judiciously, and only in those cases in which we require a rapid reduction of the temperature. Its administration should usually be accompanied by free stimulation. These antipyretics act in two ways—*i.e.*, they lessen heat production and increase heat dissipation; and we must take this into consideration in determining the nature of the antipyretic to be given.

The second method of reducing temperature is by the external application of cold. This method is not only the most beneficial, but is the most stimulating to the various systems. It may be done by means of the cold pack, by the application of the ice-cap to the head, or of the ice-coil to the abdomen; but far beyond the beneficial effects of the wet pack and these other methods, the application of the Brand method, pure and simple, is unquestionably the best means of reducing fever, no matter what pathological condition exists. Dr. Adams says this without any hesitancy. He has no compunction whatever in taking from its bed a child having one of the infectious diseases, with a high temperature and accompanying nervous excitement, and placing it in a bath under proper conditions, for he believes that he is not only reducing the temperature but is placing the system in far better condition than prior to the administration of the bath. The Brand method must be carried out in every detail. It is not sufficient to take the little one out of bed and place it in a bath-tub. The bath-tub should be brought to the patient, and the latter should be gently lifted out of bed and placed in the tub, and then the manipulations should be conducted during the bath, and the necessary stimulation given. The result is that the reduction of the temperature is effected with perfect safety.

Dr. Adams has demonstrated to his class in the Georgetown University a case like the following: A child of eight years who was wildly delirious with typhoid fever was placed in a tub containing water at a temperature of 90° F., and kept in this bath for fifteen minutes. Enough heat was dissipated from that child to raise thirty gallons of water 4° F. This shows the immense amount of heat abstracted. The child, who was wildly delirious at the time the bath was begun, became conscious and rational; the pulse increased in force. Quite commonly the temperature rises after three or four hours to its former height, when the bath can be repeated.

In connection with the treatment of acute infectious diseases, Dr. Adams is repeatedly asked why we do not see so frequently the complications and sequelæ commonly observed in former years. When he began to practice medicine, as soon as a child was attacked by one of the eruptive diseases, he was isolated, and every crack in the windows of the sick-room was sealed. A blanket was placed over every door but one. The child remained in that vitiated atmosphere from the beginning to the end of the disease, with the result that there was a continual inhalation of a vitiated and germ-laden air. Twenty years ago to give a drink in such a case was equivalent to the physician receiving his passport, so far as that household was concerned. In private practice the complications of scarlet fever, and the post-scarlatinal conditions, are now much less frequently seen than they were ten or fifteen years ago. It can be attributed not only to

the freer use of water and better ventilation of the sick-room, but also to the practice of placing such fever patients in baths when the temperature requires reduction. Such treatment favors the elimination of the toxic material, and as a result convalescence is more rapid and smooth, and the complications and sequelæ are avoided.

The temperature of the bath varies considerably in different cases. With a temperature of 105° we should be very careful how we reduce the temperature of the bath below 95°, the books to the contrary notwithstanding. If we can accomplish what we desire by a warmer bath, and with less inconvenience and discomfort, why should we use a colder one? Some advise a bath at 60° or 55° F., and some even a bath at 50° F. Dr. Adams claims that just as good results follow the use of a bath having a temperature of 95° to 100°, provided a cold cloth is applied meanwhile to the head. The ordinary duration of a bath is ten minutes, and during this time the patient should be subjected to continuous friction. He says he should hesitate a long time before giving his consent to a fever patient receiving a bath at 55°. The city water probably has a temperature of about 50°, so that the effect of such a bath on a normal temperature can be readily tested by jumping out of bed into water just drawn from the faucet. He is confident that if this is tried a verdict will be rendered in accordance with what he has said.

TREATMENT OF CHOREA BY MASSIVE DOSES OF ARSENIC.

In a Paris thesis of July 19, 1898, DEL POZO records thirty cases of chorea treated by massive doses of arsenic. He considers that these massive doses are far superior to treatment by antipyrin as it is commonly employed, and states that there are two ways in which arsenic may be administered, namely, in small doses very gradually increased, and in large, massive doses rapidly increased up to the point of intolerance, or in other words, until the gastrointestinal canal of the patient rebels, as manifested by vomiting and diarrhea. As soon as these symptoms are developed the dose is cut down day by day until one is obtained which the patient can bear. He asserts that such a treatment usually produces cure within nine days, and that accident from this method is rarely met with. Four cases of arsenical neuritis are reported. Arsenical fever is rare; sometimes arsenical pigmentation occurs, but this speedily passes away as soon as the drug is stopped. — *Revue de Thérapeutique Médico-Chirurgical*, January, 1899.

TREATMENT OF ECZEMA IN INFANTS AND CHILDREN.

In the *New York Medical Journal* of April 1, 1899, ALLEN expresses the belief that the treatment of infantile eczema is almost exclusively local. The health of these children is usually about the average of those of equal age and social station. In nurslings the mother's breast is taken regularly, or more often irregularly; but aside from this, as we fail to discover vices of table or vicious habits, we cannot fall back upon the much-abused *excessus in vino et venere* as an excuse for not effecting a rapid cure.

For the scalp affection, and for dry, scaly patches elsewhere, resorcin is useful, as it is in the seborrheal forms of eczema in the adult; it is here equally efficacious, but must be used in much decreased strength, as in the following prescription:

℞ Resorcin, 0.5–1.0;
Washed sulphur, 2.0–4.0;
Lanolin, 5.0–10.0;
Lard, ad 100.0.

As an ointment base nothing seems very much superior to the long-tried zinc oxide ointment.

In almost all eczemas about the anogenital and groin region during the past year Allen has been using a three-per-cent watery solution of methylene blue, and can say without hesitation that here, as well as in erythema intertrigo in infants, it has given him most satisfactory results. The drug is somewhat analgesic, is soothing to the irritated, raw, and sometimes ulcerated surfaces, it forms a protective coating, is antiseptic, and from its discoloration leaves no doubt as to the time when a new coat of the solution is required.

In order to keep the parts free from excreta and urine Dr. Allen instructs the mother or nurse to place the infant regularly at each time of feeding, or every two hours, upon a small vessel, with the object of teaching it thus early in life not to urinate in the diaper. If the stream does not follow upon contact of the buttocks with the cold rim of the vessel, the finger-nail or any sharp-pointed object drawn from the bladder region to the umbilicus may succeed in inducing urination. In male children he has frequently accomplished this object by

painting the glans penis with a drop of cold methylene solution. These methods are, at times, useful in securing a specimen of the infant's urine for analysis, and are much superior to passing a catheter or wringing out a wet diaper.

Methylene blue he has used extensively in a great variety of eczemas, and he believes it a valuable addition to the means of cure. Upon the exposed parts, however, the color is, in most instances, an objection; and in general the staining of the clothing might be a drawback. In point of fact, the parents are so well satisfied with the results that never has this been raised as a serious objection in any case so treated.

The form of seborrheal eczema is more rarely pityriasic, with dry desquamation and slight infiltration of the integument. Here mild salicylic and ichthyol applications are of use, as for example:

℞ Salicylic acid, 0.2–0.5;
Powdered zinc oxide, 10.0;
Powdered starch, 15.0;
Compound tincture of benzoin, 10.0;
Lard, ad 100.0.
M.

Naturally in this, as in any other forms, if any internal derangement is made out, it is to be combated by internal remedies. If there is anemia, and especially if the secretions are inactive, or there is at the same time intestinal fermentation, the following tablet can be given with decided advantage:

℞ Calomel, 1-10 grain;
Saccharated iron carbonate, ½ grain;
Powdered white sugar, 2 grains.
M. S.: One crushed in milk twice a day.

In older children:

℞ Iron peptonate, 40 grains;
Elixir of calisaya, 2 ounces.
M. S.: A teaspoonful three times a day.

An occasional larger dose of calomel, a sixth to a fourth of a grain, once a week, is often of benefit.

If the mother of the nursling is a beer drinker or a tea drinker, or if she is in a state of ill health, or suffering from habitual constipation, her condition is to be looked after for the benefit of the little patient.

In the impetiginous form, if the crusts are thick and not readily removed by oil or soft soap, Dr. Allen often orders a favorite cataplasm of the French made with potato flour (*fécule de pomme de terre*), but he usually orders it made with some antiseptic, such as mild bichloride, carbolic acid, or lysol solution, the latter having the advantage of being somewhat antipruritic.

In the more chronic, *i.e.*, persistent, forms of eruption in older children, and when there are extensive scaly plaques upon the back of the neck, or involving the margins of the scalp regions behind the ears, he uses a stiff, paste-like ointment, as in the formula:

℞ Resorcin, 1.0;
Tar, 2.0;
Prepared zinc carbonate,
Powdered zinc oxide, āā 10.0;
Lanolin, 50.0;
Lard, ad 100.0.
M.

This is an intermediate prescription between stiff pastes and thin ointments without adhesive properties, and has an advantage over ordinary pastes made with starch in that in the latter, when the fat is absorbed by the crusts, the skin, and the dressings, there is left behind a residue of dry crumbling or caking material, which is apt to act more or less as an irritant, and thus in a measure defeat one of the very objects for which it was employed.

When an impetiginous eczema is impetiginous because it has been inoculated with the virus of true impetigo, ammoniated mercury ointment, so useful in the latter, is, in modified strength, here likewise efficacious.

The neurotic, nervous, or reflex eczemas, usually of symmetrical distribution, occurring in young children who are florid, fat, and in fit condition, and in whom no error of diet may be discoverable, is an excessively pruriginous affection, requiring primarily applications which will allay the itching and prevent the scratching which is so pronounced an element in the dissemination and aggravation of the condition. Although attributed to the irritation of cutting the gums, it is seen not infrequently in those who have not yet reached the period of eruption of the teeth. Intestinal irritation may be found, especially if the child has reached the age at which certain liberties of diet are allowed. In the majority of cases reliance must be placed almost wholly upon external measures, and one of the most difficult problems to solve is that of retention of applications *in situ*, and the prevention of injurious scratching and rubbing, especially at night. Dr. Allen has devised for the purpose of retaining dressings upon the head and face a little cap with a mask attached. It is made from a single piece, so that by removing the stitches or safety-pins from a single seam it

can be used as a pattern from which new caps may be cut out. He says he finds this a necessity, since mothers and nurses, however willing, are often unable to manufacture efficient head dressings. Sheet lint or linen is spread with the particular ointment to be applied, in strips of requisite size for the various regions, and over this is placed and securely fastened the cap and mask as devised. Besides this it is necessary to secure the hands to the side by means of safety-pins, attaching the sleeve of the night-dress to the diaper. Whatever rubbing against the pillow is indulged in can then do little more than rub in the ointment applied.

THE VALUE OF STRYCHNINE IN PREGNANT WOMEN.

TOLMATSCHEFF has recorded the results obtained by him in the administration of strychnine in the dose of $\frac{1}{40}$ or $\frac{1}{30}$ grain twice a day to pregnant women, the drug being given after meals for a period varying from six to ten weeks. He states as a result of his studies in twelve cases that strychnine is a valuable remedy to prevent the atonic constipation of pregnancy, and also that he regards it as being an excellent preventive against feeble uterine contractions. He failed to see any instances in which the treatment seemed to produce disadvantageous results. —*Revue de Thérapeutique Médico-Chirurgical*, January, 1899.

IS PETROLEUM EMULSION OF ANY NUTRITIVE VALUE?

A reply to this question is made by HUTCHISON in the *British Medical Journal* of March 25, 1899. He says that there can be no doubt that in recent years petroleum emulsion has crept into use as a substitute for cod-liver oil in the case of patients who are unable to take the latter. Now, petroleum belongs to the paraffin series—that is to say, to a set of substances which are characterized by the great opposition which they offer to chemical change. One would not, therefore, expect on *a priori* grounds that petroleum would be capable of assimilation in the body. In order to put the matter to practical test, Dr. Hutchison recently carried out some experiments on the absorption of petroleum emulsion by man, the result of which entirely confirmed the suspicions which he had entertained on chemical grounds, and led to the conviction that petroleum is of absolutely no use at all as a substitute for cod-liver oil. It is the object of his paper to describe these experiments and the conclusions to be drawn from them.

He employed a well known and widely advertised emulsion of exceedingly pure petroleum. It was found that thirty cubic centimeters of it, when mixed with charcoal and evaporated to dryness, yielded on extraction with ether seven grammes of semifluid petroleum; thirty cubic centimeters represents about three dessertspoonfuls, which is the usual daily dose of the emulsion in question. He next proceeded to administer this dose to a healthy man with the object of ascertaining how much petroleum one could recover from the feces. In the first experiment the subject was placed on a constant diet containing a moderate amount of fat. The feces were collected daily, mixed with animal charcoal, and evaporated to dryness. The product was then extracted with ether in a Soxhlet's apparatus and the extract weighed. The results are contained in the following table:

FIRST EXPERIMENT.

	Ether extract. Gm.
Total feces of three days without petroleum ...	7.1
Total feces of three days on 30 Cc. petroleum emulsion per day	32 7
Difference	25.6

That is to say, the adminstration of three dessertspoonfuls of petroleum emulsion daily had increased the ether extract of three days' feces by 25.6 grammes, although the diet was exactly the same as on the three previous days. The appearance of the extract was also quite different for the two periods. That of the first three days was solid and waxy, while that of the three petroleum days was semifluid in consistence.

In order to recover petroleum free from fat the ether extract was saponified by boiling with alcoholic potash solution. The residue was diluted with water, shaken up with ether in a separate funnel, the ether evaporated, and the residue weighed. The total 32.7 grammes yielded on this treatment 21.6 grammes of semifluid petroleum. Now seven grammes of petroleum had been administered on each day, so that 21 grammes had been given, and 21.6 was recovered. The apparent excess found was probably due to the presence of traces of soaps.

In the second experiment no attempt was made to regulate the diet. Thirty cubic centimeters of the emulsion was administered on one day, and the feces of the three suc-

ceeding days extracted with ether, and the extract saponified as above.

SECOND EXPERIMENT.

	Ether extract. Gm.
First day (no petroleum)	3.5
Second day (no petroleum)	4.1
Third day (30 Cc. emulsion)	4.3
Fourth day (no petroleum)	7.6
Fifth day (no petroleum)	6.9

On saponification, the extract of the fourth day yielded 4.5 grammes of petroleum. The extracts of the third and fifth days yielded together 2.6 grammes. The total amount of petroleum recovered was thus 7.1 grammes, while the amount contained in the 30 cubic centimeters of emulsion given was seven grammes. The results of this experiment entirely confirm those of the first.

From these experiments it may reasonably be concluded that petroleum is not absorbed in the human intestine, and Dr. Hutchison considers, therefore, that it can in no wise be regarded as a food or a substitute for cod-liver oil. Nor does he suppose that petroleum has any remote action, say, upon the lungs. It is conceivable that if crude petroleum were employed, some of the volatile substances contained in it might enter the blood and be excreted by the mucous membrane of the air-passages, but the purer the petroleum used the less chance is there of any such occurrence.

Whether petroleum may have any value as a local application in intestinal diseases must be left undecided. One can imagine that there may be conditions of the intestinal mucous membrane in which the administration of petroleum might be of value in the same way as the application of vaselin to the skin, by forming a sort of pellicle on the intestinal surface. In one sense, also, it may be regarded as an artificial intestinal mucus, and it might in that way have some value in certain forms of constipation. It is also worth considering whether it might not be a useful vehicle for the administration of intestinal antiseptics. Carbolic acid dissolves in it, and if the petroleum prevented the absorption of the acid it would also bring the latter into intimate mixture with the intestinal contents, and act as a sort of internal "carbolic vaselin;" but that part of the subject would require special investigation by experiment. Dr. Hutchison's only object at present is to point out that petroleum, even when given in the form of emulsion, is not absorbed at all, and as a consequence can have no nutritive value.

PROLONGED CHLORAL SLEEP IN THE TREATMENT OF CHOREA.

The *Medical Record* of April 1, 1899, contains an article by LICHTSCHEIN on this subject. Among the many drugs that have been employed, undoubtedly the most important is arsenic in the form recommended by Romberg. Salicylate of physostigmine, enormous doses of carbonate of iron, chloroform, narcotics, and many other drugs, as well as cold-water treatment, galvanization of the brain and spine, and change of location, have been used with more or less good results. Then, in acute chorea, hygienic measures and changed surroundings, with one or several drugs in combination, will cause a cessation of the disease. But in a small minority of cases all those means mentioned above do not effect a cure, and the disease lasts for years. The patients become exhausted, anemic, and arrested in their physical development, and even their intelligence suffers. What shall we do with these cases?

In the treatment of neurasthenic patients Dr. Lichtschein has for some years employed the rest cure of Weir Mitchell, enforced with the administration of chloral hydrate in doses sufficient to keep them in a somnolent condition. During the treatment of these patients he has observed that their appetite increases, digestion and assimilation improve, and as there is no other kind of energy expended, a rapid gain in weight and strength, and consequently a remarkable abating of nervousness and irritability, result. Furthermore, taking into consideration that choreic movements generally cease during sleep, and that for some time after a night's rest the choreic movements are weaker, and grow stronger only as the day grows older, he came to the following conclusions:

Given a long rest during sleep, and the time of so resting being employed in rapidly strengthening the body, we might have a twofold result: First, the nutrition of the nervous system being improved, the premature discharges of nerve impulses to the muscles may cease; and secondly, the impressions in the nerve centers caused by the centripetal impulses emanating from the agitated muscles may grow weaker and weaker the longer those twitching muscles are at rest, and finally disappear. During sleep, be it natural or artificial, the whole brain and nervous system, with the exception of those parts that superintend the vegetal functions of the body, are at rest. There is no part that need expend more energy than

another; therefore an equalization of vital force in the nerve centers is possible that could not take place if the patient was awake. Though he is in bed and perfectly isolated, he cannot help performing mental work, as thinking, hearing, seeing, etc., which requires the expenditure of as much cell energy as the physical work does, and perhaps more. And now, if during this nearly perfect rest we are able to furnish the means wherewith this equalization of cell energy can be effected —nay, more, if a reserve force can be accumulated—we have accomplished our purpose.

And here, again, sleep is preferable to the waking condition. When the patient is awake we have to contend against his tastes and his discriminations against such foods as we think it necessary to give him, and the digestion in chorea being bad, we must and have to abstain absolutely from crowding food into his stomach. During a somnolent condition caused by chloral we avoid these obstacles; and it does seem as if the chloral acted as an antifermentative and appetite-exciting remedy, for the patients under its continued influence crave for food and assimilate it more readily.

Dr. Lichtschein has observed in the treatment of neurasthenic patients with whom he first employed the prolonged sleep by means of chloral hydrate, that small doses of chloral — five to ten grains every three or four hours — had no effect, did not diminish the restlessness, nor produce sleep. He had to resort to twice, nay, three times, as large doses to have the desired effect, viz., a deeply somnolent condition. It seems that neurasthenic, and to a greater extent choreic, patients need more chloral to become quiet and sleepy than those suffering from other diseases. Still, in giving chloral one has to be very cautious in determining the necessary quantities to be used. It is well to give one single dose, say ten to fifteen grains, first, and if sleep is produced to determine from the depth and duration of the sleep the dose of the drug and the time at which it is to be repeated. If the first dose does not cause sleep, increase the dose until sleep is produced and determine as above. The sleep should be superficial enough to allow patients to respond when loudly spoken to, and still be sufficiently deep to keep them quiet.

One would raise the objection that chloral is a dangerous remedy, is a heart depressor, and that its continued use would weaken the heart; but by giving at the same time small doses of strychnine and watching the pulse and respiration, and immediately reducing the dose of the chloral if the former is greatly accelerated and the latter has become less frequent, the author has, in the cases of neurasthenia treated by this method, never observed any bad effects whatsoever, either during the sleep or after the patients were awake. He has treated with this prolonged sleep three cases of chronic chorea, in all with excellent results.

NEPHRITIS COMPLICATING ACUTE OR SUBACUTE GASTROENTERITIS OF INFANTS AND CHILDREN; ITS TREATMENT.

KOPLIK states in the *Medical Record* of April 1, 1899, that the treatment and management of these cases is practically the management of all severe forms of gastroenteritis. We should never lose sight of the fact that opium in any form, mercury, and the coal-tar products, designed to disinfect the intestinal tract, like benzol, salol, carbolic acid, and guaiacol, are ruinous; they only tend to deepen the toxemia, and by irritating the kidney intensify the functional disturbance in that organ.

In all these cases the suppression of urine, the rapid emaciation, are manifestly the result of the withdrawal from the tissues and blood of a vast amount of the fluid elements. It is granted that the irritation of the kidney elements is due to infectious material circulating in the blood, but in these cases also the concentration of the toxins, and thereby the total suppression of the urine, may be favored by their presence in concentration due to the great loss by the system of its watery elements. The full and free supply of water through all the possible channels is one of the greatest means of placing these cases on a convalescent basis.

Stomach washings should be daily employed, and also rectal irrigations. In the latter Dr. Koplik has employed Cantani's physiological solution (sterilized water 1 quart, sodium chloride 1 drachm, sodium carbonate 45 grains, at a temperature of 38° to 40° C.). This solution was also made use of in hypodermoclysis. For making a rectal irrigation in the infant in the severe cases cited, he employed an adult size stiff-rubber rectal tube. A small catheter is worse than useless. It doubles up on introduction in the lower rectum. The child is completely undressed, shielded with a blanket from ex-

posure, and the buttocks are raised high. The rectal tube is introduced high up the gut, and a quart or more of the above solution is thrown into the rectum and allowed to flow out at intervals, so as to clear out what little fecal matter there may be in the lower gut. The irrigation is so managed that a large amount of fluid is left in the gut after the withdrawal of the tube; in other words, we make an effective enteroclysis. We do this daily. In the very severe cases he introduces daily 200 cubic centimeters or more of sterilized physiological salt solution under the skin of the abdomen (hypodermoclysis). The medical treatment is confined in these cases to the exhibition by the stomach of bismuth in large doses.

In all cases the milk (artificial or breast) is suspended, and the child fed on albumen-water or beef juice mixed with sterilized barley-water. Inasmuch as the barley may in cases be moldy, Dr. Koplik has lately prohibited its use, as it seemed in some cases to aggravate symptoms. The so-called acorn cocoa has been a useful food substitute in many cases.

If one stops to study the above, he will see that the treatment of severe gastroenteritis has been only outlined, but in so doing a defense has been found for the application of these measures in the state of the kidneys, and it has also been shown how the use of drugs formerly much in vogue must finally injure these patients. Take, for example, the simple use of opium. Dr. Koplik has always warned against its use in any form in these cases. The physician would defend its use on the ground that it quiets the patient. This is so, but the quiet thus produced is a stupor analogous to the stupor in cases of uremia in which too much morphine has been made use of. Such a case he had occasion to see lately in consultation. He warned against opium. It was used, and the babe never roused itself from the stupor which he believes was brought on by its use, and which was intensified on account of the vulnerable state of the kidneys.

Sublimate also, even in smallest doses, is a dangerous drug in these cases of gastroenteritis, as is also calomel in repeated doses of one-tenth grain, such a favorite with many physicians. In closing Koplik speaks of the beneficial effects of warm baths with massage in the bath, and the cautious use of strychnine to stimulate the heart. He does not use alcohol in these cases.

In thus evolving the treatment for these severe forms of gastroenteritis, he has shown how step by step scientific medicine has advanced to protect the little patients from the injurious effects of the former indiscriminate and blind use of drugs of all kinds and most diverse action.

THE TREATMENT OF EXCESSIVE SWEATING.

An article on this subject is published by WEBER in the *Journal des Praticiens* of March 11, 1899. He points out that in certain conditions where there is localized sweating or hyperhydrosis, that it is chiefly a neurotic condition and is to be treated usually by the administration of bromides, antispasmodics, and, more important than all, cold douches, which will improve the nutrition of the nerves and vessels in the part affected. Of course, where alcohol, tobacco, cocaine, or similar substances are used to excess, these must be withdrawn.

In the sweating which accompanies general diseases such as the various fevers, the following treatment may be instituted:

Agaric, 45 grains;
Extract of opium, 7 grains.
Make into 40 pills and take two or three at night.

Or, in other cases, pills of agaracin, in the dose of one-tenth to one-fourth grain, may be given. In other instances tribasic phosphate of lime in the dose of one drachm is useful. In still others camphoric acid in the dose of twenty to forty grains, given in powder, in capsules, in konseal, or dissolved in brandy or whiskey. The other remedies which are not to be forgotten in this condition for obstinate cases are ergot, picrotoxin, and sulphonal.

Locally lotions of tannin one per cent, alum ten per cent, may be applied, or a powder may be put up for internal use as follows:

Pulverized talc, 3 ounces;
Salicylic acid, 20 grains.

Local sweating of the feet or hands may be controlled by applying three times a day the following formula:

Borax, ½ ounce;
Salicylic acid, ½ ounce;
Boric acid, 1 drachm;
Glycerin,
Dilute alcohol, of each 2 ounces.

In cases of fetid sweating of the feet the following may be used:

Pulverized talc,
Subnitrate of bismuth, of each 1½ ounces;
Permanganate of potassium, ¼ grain;
Salicylate of sodium, 30 grains.
Apply over the feet and dust between the toes.

Or,

Powdered alum, 45 parts;
Salicylic acid, 5 parts.

It is hardly necessary to add that in the profuse sweating which occurs at the crisis in such diseases as pneumonia we should abstain from interfering with it. Only when the sweating becomes more or less chronic should it be arrested.

DIABETES MELLITUS.

GRAHAM BROWN, in the *Scottish Medical Journal* for March, 1899, tells us that it is a matter of considerable importance that a man suffering from diabetes should lead, as far as may be, an easy life free from worries. If possible, he should give up any occupation which involves mental anxiety, as he is as a rule quite unfit to stand any strain of that kind, and such anxiety will tend to hasten the progress of the disease. The skin, as has already been said, is very dry, and it is of some importance therefore to excite its functions either by means of tepid baths, or, if the diabetic condition is not a severe one, by mild Turkish baths. He should wear flannel or silk next the skin, and he should take as much exercise in the open air as he can stand without undue fatigue.

The most important point, however, in regard to treatment is that of diet. The object, of course, is to reduce the carbohydrates as far as may be. It is not possible to do this absolutely for any length of time, but by careful selection of the food the amount of starch taken may be reduced to a very small quantity. It is, of course, necessary that one should in each case write out and give to the patient careful directions as to diet, and one should remember that after a time diabetic diet becomes very distasteful, and it is of great importance to vary the food as much as possible, and by means of alterations in the method of cooking, to tempt the palate. The following will give one an idea of the lines on which one should proceed in this matter. Of solids, the patient may take meat of any kind—fresh, salted, or even smoked—except liver; fish of all kinds, including shell-fish; poultry, game, rabbits, eggs, butter, cheese, lettuce, tomatoes, asparagus, watercress, celery, cucumber, mushrooms, and the various kinds of diabetic bread, provided these are reasonably free from starch. In small quantities the patient may take lemons, oranges (if not sweet), currants, and cranberries. Subject to the reservation to be mentioned presently, all farinaceous preparations should be forbidden, also bread, rice, tapioca, semolina, arrowroot, and the like. Peaches, turnips, asparagus, vegetable marrow, beet-root, green peas, cauliflower, all sweet fruits, and sugar in any form are likewise inadmissible.

Of liquids the patient may take water, aerated water, tea, coffee, soups which have not been thickened with farinaceous material, and, if one gives a stimulant, a little light claret or a very little whiskey may be allowed. Milk may be also taken, but only in comparatively small quantity. The consumption of sweet wines and liqueurs, of cocoa and chocolates, and of beers and ales should be forbidden. The great difficulty is as regards bread, for which diabetic patients have an exceeding fondness. Diabetic bread is not very pleasant as an article of food, and sometimes we are obliged to allow a little ordinary bread. It is best taken as thin toast, rather overtoasted. In diabetic cookery, saccharin may take the place of sugar.

The various diabetic foods which are sold are not, as has been said, very palatable, and in the case of many of them, if one has them analyzed as we should do, we will find that they are by no means as free of starch as is represented. One has, therefore, to be careful in the selection of the almond, gluten, or cocoanut cakes which we allow the patient to have.

In some cases of diabetes, certain carbohydrates can be taken without harm. Kulz showed, many years ago, that in diabetics the liver frequently retains the power of transforming levulose into dextrose, and consequently both levulose and the nearly allied inulin have been used in the diet of diabetics. Regarding the latter of these, however, the careful observations of Sandmeyer show that it is very indigestible. Levulose, which can be readily obtained commercially, may very properly be made use of in diabetic diet, care being taken to ascertain that the amount of sugar in the urine is not thereby increased.

Now while in every case of the severe form of diabetes a somewhat rigorous diet requires to be adhered to if the disease is to be held in any way in check, no such severity of dieting is necessary in the lighter cases. Indeed, sometimes when the sugar is small in quan

tity and is associated with gout, all that is needed is that the patient should be given a diet suited for that malady. And between these two extremes all sorts of intermediate conditions may be found. That is, one may often encounter cases in which, though much starch occasions glycosuria, a small quantity will not do so, the amount of disturbance of the glycogenic function being slight. It therefore becomes one's duty to discover—in case of any individual patient—how much, if any, starch he can consume without increase of sugar in the urine. He should be put at first on a very strict diet, and after a week or so, when the quantity of sugar present in the urine has become stationary, he should be allowed to take a certain small quantity of starchy food. If no increase of sugar results a little more may be given, and in this way one learns what quantity of starch it is safe to give.

Patients who can afford to visit Vichy or Carlsbad, and to whom a few weeks spent abroad are not distasteful, may very well be sent to one or other of these places, provided only that the disease is not too far advanced. Dr. Brown has seen very marked benefit follow a course at both these spas.

The medicinal treatment of diabetes is not very hopeful. Opium has been much used, and sometimes great benefit follows its employment. It usually has to be given in rather full doses, and a remarkable diminution of the sugar in the urine may then be observed. Sometimes morphine may be found to suit better, and codeine is likewise frequently employed. Benefit may also be found to follow courses of arsenic. This remedy should be given in gradually increasing doses and for a considerable period of time. Many other remedies have been employed, such as lactic acid, glycerin, iodoform, antipyrin, phenacetine, salicylate of soda.

There remains only one point to note, viz., that in regard to the use of extracts of the pancreas, if, as we have reason to believe, destruction of the pancreas is followed by the symptoms of severe diabetes, it would seem logical, in the light of the results obtained with the thyroid gland in cases of myxedema, to expect great benefit from the administration of extracts prepared from the pancreas. Unfortunately, however, this is not the case. Pancreatic extracts have been administered many times, but it is seldom that any distinct effect has been obtained. What the reason of this is we cannot tell. It may be that the particular ferment of which we are in need has been destroyed in the preparation of the extract, or has been broken up by the juices of the stomach before it could be absorbed. However that may be, it is to be hoped that in the not far distant future some method of preparation of pancreatic ferment and of its administration may be discovered, which shall prove useful in the cure of diabetes.

SULPHONAL POISONING.

A case of sulphonal poisoning is reported by GULLAND in the *Scottish Medical Journal* for March, 1899. In discussing this case he takes up: (1) The clinical history of sulphonal poisoning; (2) the differences between this and acute sulphonal poisoning; (3) the pathology of the two conditions; (4) their treatment; (5) the conditions under which sulphonal should and should not be used.

1. *Clinical History.*—One must carefully distinguish, as Friedländer was the first to do, between the by-effects which may appear after patients have taken sulphonal, and which are due to a temporary effect of the drug, and those more serious symptoms which are the result of its cumulative action, and alone deserve the name of poisoning.

The former usually appear on the day after a medicinal dose of sulphonal, and include headache, tinnitus, muscular weakness, feeling of fatigue, continued sleepiness, giddiness, loss of coordination, and sometimes a scarlatiniform rash. The percentage of persons in whom one or other of the symptoms occur is not very large, and as a rule they pass off rapidly, with the occasional exception of the disturbance of coordination.

Chronic poisoning does not set in unless the patient has taken at least several medicinal doses, and usually not unless he (or she rather, for women are much more frequently affected than men) has been taking the drug for a month or so. Schulz's fatal case was in a woman who had only had fifteen grains of sulphonal sixteen times in a month—an allowance which many people exceed—but Dr. Gulland can find no other fatal chronic case where so small an amount was taken.

As a general rule the first symptoms to appear are gastrointestinal—anorexia, thirst, nausea, vomiting, and especially constipation, which may be followed by diarrhea. There is sometimes cardiac weakness; there may be a skin eruption; the temperature does not seem to be specially affected, as both rise and fall have been observed. Soon after the

gastric symptoms, as a rule appear nervous symptoms, of which the most marked are ataxia of the extremities and a staggering gait, sometimes, though not so often, paralysis of the extremities or of facial muscles, and in very severe cases localized or general convulsions. Mental apathy and depression, with anesthesia of the skin, often come on along with the motor symptoms, and in the fatal cases pass on to coma before death. Drowsiness is not a very prominent symptom in most cases until the final stage is reached. Sometimes early, sometimes later, appear changes in the urine, at first a diminution in its amount, then sometimes albuminuria, and especially that symptom which has come to be generally associated with sulphonal poisoning — hematoporphyrinuria — the excretion of deep-red urine, which owes its color to the pigment hematoporphyrin. This urine is always intensely acid, and contains unchanged sulphonal.

Though it is evident that the hematoporphyrin must be derived from the hemoglobin of the blood in some way, we know very little about the condition of the blood in these cases. Some observers have found a diminution in the number of red corpuscles and a fall in the percentage of hemoglobin, but the difference from the normal has seldom been very great, and many of the people in whom the poisoning occurred were very likely the subjects of a certain amount of anemia. More will be said of this in discussing the pathology of the condition.

The case which Dr. Gulland has narrated was a fairly typical one, and was terminated, as most of them are, by heart failure.

2. The differences between chronic and acute sulphonal poisoning are very considerable. The symptoms appear rapidly after a single large dose, taken by accident or for suicidal purposes as a rule. Sleep comes on, and sometimes a prolonged sleep lasting for days and followed for a time by giddiness is the only evil effect. Sixty grains has produced a sleep lasting seventy-five hours, and in one case a woman who had taken thirty grains slept for forty hours, could not be awakened, and died at the end of that time.

In most cases which recover there are some after-effects — gastrointestinal disturbance, muscular paralysis, ataxia, nephritis—which last for a longer or shorter time, and are not dependent on the amount which has been taken. It is curious, however, that hematoporphyrinuria only occurs, if it occurs at all, very exceptionally in the acute cases. With this may be noted the fact that in almost all of the acute cases in which the blood has been examined no abnormality has been found, or if any change was noted it was simply a diminution in the percentage of hemoglobin, which need not have been due to the sulphonal.

The prognosis in the acute cases is relatively much better than in the chronic ones; if treatment is begun early one can almost depend on saving the patient, while a pronounced case of chronic poisoning can hardly recover.

To recapitulate briefly, the symptoms in chronic cases are usually, first, gastrointestinal, especially vomiting and constipation, then nervous ataxia and depression, passing into a sleep-like coma, and with that albuminuria and hematoporphyrinuria. If the patient recovers these symptoms pass off, the hematoporphyrinuria being usually the first to disappear, and some nervous symptoms generally remaining longest. In acute cases the first and prominent symptom is sleep, and only when that has ceased do the other symptoms become evident. They usually pass off entirely after some time and leave the patient well.

3. The pathology and pathological anatomy of the condition depend on the facts that sulphonal is not readily soluble, that it may remain for a long time in the alimentary tract, that it or its products may also be retained in the blood and cause changes there, and that it is ultimately excreted by the kidneys. It will at once be seen that any weakness, functional or organic, along its line of march will favor the occurrence of chronic poisoning on the one hand, or add to the dangers of acute intoxication on the other. Thus constipation favors poisoning, and we find that almost all the fatal chronic cases have occurred in people who were habitually constipated. Any affection of the liver, of the blood or heart, and, at the other end of the chain, of the kidney, will assist in the accumulation of the sulphonal in the body and enable it to produce toxic effects. There is no doubt that accumulation takes place in perfectly normal people. Morro has shown that after a few doses have been taken the amount excreted unchanged in the urine becomes larger every day, and when the drug is stopped unchanged sulphonal is excreted in the urine for at least three days.

Let us follow the drug in its course through the body, and see what changes are produced in the different organs. The stomach and

intestines are said sometimes to show superficial necrosis, and Stokvis believed, from his experiments on rabbits, that hemorrhages often occurred in the gastric and intestinal walls. These, however, are common in rabbits and not peculiar to sulphonal poisoning in them. In the liver congestion has always been found, and sometimes the cells are broken down; they are always more or less fatty, but Dr. Gulland has nowhere else found described the degeneration of the walls of the portal vein which he has noted. The heart has generally been found to be fatty, and from its weakness result the various signs of stasis which he has described in the lungs and spleen of his case, while Hoppe-Seyler and Ritter refer the occasional bronchopneumonia to the aspiration of food particles into the lungs during the coma.

With regard to the changes in the kidney there is a striking unanimity of opinion. The chronic cases of Marthen and Stern showed exactly the same destruction of the secreting cells which Dr. Gulland has described, the acute cases of Hoppe-Seyler and Ritter and others presented it, and it has been produced experimentally in animals; so that it seems to be an invariable phenomenon. It accounts, of course, for the oliguria and albuminuria, and for the tube-casts which have often been found in the urine of both chronic and acute cases.

The hematoporphyrinuria is much more difficult to explain and has roused the interest of many observers. Hematoporphyrin, or iron-free hematin, is derived from hemoglobin when it is acted on by acids in the absence of oxygen. Hemochromogen is first formed, which then loses its iron and becomes converted into hematoporphyrin. It has been usual to assume that hematoporphyrinuria is causally associated with sulphonal poisoning and that it has to do with the frequent fatal issue, and to assume as a result of this that sulphonal is a blood poison in the sense in which either chlorate of potash or anilin is a blood poison. But it appears to have been overlooked that sulphonal can kill without the production of hematoporphyrinuria, and without causing any reduction in the number of red corpuscles or the percentage of hemoglobin; for, as Dr. Gulland has already said, hematoporphyrinuria does not appear in the acute cases, nor in those acute cases in which it has been examined has there been any change in the blood. In several of the chronic cases, it is true, anemia has been found, but it has always been the kind of anemia which is likely to occur in the course of a parenchymatous nephritis—a slight diminution of the red corpuscles and a rather greater diminution in the hemoglobin, without any marked change in the leucocytes. The facts, besides the hematoporphyrinuria, which make one think of sulphonal as a blood poison are the fluidity of the blood and the ease with which the red corpuscles become transformed into shadows. The patients never looked specially anemic; they were never cyanosed as in anilin poisoning, and it would seem that the cause of death in both the acute and chronic cases should be sought in the kidney condition which is common to both, and which must certainly involve retention of products which should be excreted. It seems, in fact, that the cause of death is probably a uremia, using the word in its widest sense, whose symptoms are masked by the effects of the drug. We must remember, too, that as von Mering has shown, it is impossible to produce hematoporphyrinuria at will, either in animals or man, even by giving large doses to animals for a long time, and though these animals are poorly nourished and acids are given along with the sulphonal, and the condition occurs in the most capricious way.

Nakorai has recently shown that Stokvis was right in saying that hematoporphyrin was present constantly in the urine of patients suffering from lead poisoning, but the only other condition where hematoporphyrinuria is at all constant is in hemorrhage from the intestine. Otherwise it is rare, though there seems to be small traces of hematoporphyrin in many normal urines. There seems a possibility that both in lead and sulphonal poisoning the hematoporphyrinuria may be due to intestinal hemorrhage, but we know so little about the way in which sulphonal is absorbed, or even what are its decomposition products in the urine, that it is impossible to dogmatize on the matter. Kast's original view that it is excreted mainly as ethyl-sulphonic acid is not now widely held. Von Mering suggests that it may be excreted as amido-derivatives of ethyl-sulphonic acid. Certainly the urine is always strongly acid, and equally certainly hematoporphyrinuria can be controlled by the free use of alkalies.

Dr. Gulland states that he is far from saying that sulphonal may not sometimes act as a blood poison, and that the hematoporphyrinuria may not partly be due to that, but there must certainly be some other factor at work of which we as yet know nothing, and

which determines that in one case a patient shall take sulphonal for months or years unharmed, while another dies in a month from the time the first dose is taken.

It is somewhat curious that in Dr. Gulland's case, though the kidney was so seriously affected, no albumin was found in the urine by any of the ordinary tests. The explanation seems to be that there must have been complete suppression of urine secretion for some time before death, probably for twenty-four or thirty-six hours, and that the urine which was drawn off by the catheter was the product of the kidneys before they became so seriously affected. At the post-mortem examination only half an ounce of urine was found in the bladder, although it was about ten hours since the catheter had been passed, and that amount might easily have been left in the bladder after that operation. Dr. Gulland suspects there had been complete anuria for some time before death.

He says he cannot explain the condition of the blood, especially the presence of so large a percentage of lymphocytes in the films, as he has made no special observations on the state of the blood found post mortem in the heart. There certainly must have been some anemia during life, or the few nucleated red corpuscles and poikilocytes would not have been present; but equally certainly the anemia could not have approached in degree that in a pernicious anemia, or even that in the acute anemias, as, for example, that of septicemia. It is, of course, possible that the sulphonal or its products may in some way alter the hemoglobin of the corpuscles or alter the blood plasma, without causing a very extensive breaking down of corpuscles; but the mystery still remains unsolved, why it exerts its action as a blood poison only in certain individuals, and only when it is allowed to act as a chronic and cumulative poison.

4. The treatment of the two forms of poisoning may be summed up as follows: In the acute form, as the poison is absorbed but slowly, the stomach should be emptied if the patient is seen early enough, or the vomiting which is often present may be encouraged. Later, purgatives may be given to remove as much as possible of the drug from the intestine, and all possible means be tried to keep the kidneys acting freely. Neisser saved his case, where 1500 grains had been taken in a single dose, by giving large enemata of warm water frequently repeated, which produced free diuresis; and it would probably be well to try this again. Other treatment must be symptomatic.

In the chronic form, while it would be well to clear out the bowels and to promote diuresis, the best results have been obtained by giving large doses of alkalies, as Muller did, in such quantities as to render the urine alkaline if possible; probably both the bicarbonates and either the acetates or citrates should be given. As before stated, unless the chronic cases are very slight, the prognosis is very bad. Alkalies control the hematoporphyrinuria, and where their use has been stopped too early the red coloration which had entirely left the urine has returned.

5. *Indications and Contraindications.*—It is not worth while to speak of the indications, for upon making inquiries it will be found that probably more sulphonal is used than all the other hypnotics put together, so that it evidently meets a felt want. It has the advantage of giving a very restful sleep; and as most people probably only use it now and again, so that plenty of time is allowed between doses for elimination, there is no great danger in its use in the majority of cases.

It should not be given in cases where there is great prostration, in cases where there is gastrointestinal disturbance, especially if this takes the form of constipation, in cases of heart disease, in old people, or where there is a parenchymatous kidney lesion, acute or chronic. The maximum daily dose for a man should be thirty grains, for a woman fifteen to twenty grains; and it should never be given continuously, but pauses of at least three or four days should be allowed from time to time to permit elimination of the accumulated drug. It should never be given in the solid form, both because it is less quickly absorbed, and acts less quickly in that way, and because it is more likely to cause gastrointestinal disturbance. It is most soluble in hot alcohol, so that hot whiskey toddy is probably the best medium in which to give it; the next best, hot water.

The occurrence of any symptoms of chronic poisoning should be an indication to stop its use at once, and no patient who requires to take sulphonal for a long period should be allowed to pass out of observation. It is one of the disadvantages of the tabloid method of putting up drugs that patients can get such drugs as sulphonal without difficulty and can continue their use without let or hindrance.

In cases where a hypnotic of the class to

which sulphonal belongs is required, and where it is not desirable to use sulphonal, trional may with advantage be employed. Sulphonal is di-ethyl-di-methyl-sulphone-methane, and trional is derived from it by the substitution of another ethyl radical for one of the methyls. It is much more soluble, and consequently acts in a smaller dose, more quickly, more certainly, and without leaving the unpleasant after-effects of sulphonal. Though it is not absolutely free from the risk of causing chronic poisoning, it is much less likely to do so than sulphonal, as it does not accumulate so much. Its only relative disadvantages are that it costs about twice as much as sulphonal, and that it has a more unpleasant taste. It is displacing sulphonal largely in Germany, to judge by the opinions quoted by von Mering, but shows little sign of doing so in this country.

Dr. Gulland does not consider that sulphonal should be regarded as a dangerous drug, but he would plead for greater caution in its use and especially for greater discrimination in the choice of the cases where it is to be employed. Its apparent capriciousness of action is its chief danger, and a drug which has a recorded death-roll of at least thirty cases, and probably many more unrecorded, is not one which should be recommended with a light heart to the first-comer.

GLONOINISM.

While we are all more or less acquainted with the effects of nitroglycerin when introduced into the system in medicinal doses, we are perhaps not so familiar with the peculiar conditions it produces when absorption takes place by inhalation and through the skin in doses the size of which we have no means of ascertaining, but which may be enormous. Observations, therefore, of a class of patients of this kind, carefully made and covering a considerable period of time, cannot fail to prove interesting. In *International Clinics* for January Dr. Geo. C. Laws has reported a number of cases of intoxication by this agent, to which condition he has given the name "Glonoinism." His experience was obtained among the workers in a nitroglycerin factory during the past twenty years, where many of the employees are compelled to handle thousands of pounds of nitroglycerin a day, and the hands and arms as far as the elbows are covered with it, frequently for hours at a time. Naturally absorption through the integument, or, as is now believed, some volatilization and absorption through the lungs, occurs. In either case the result is the same; the drug exerts its action upon the arterial system through a paralyzing action upon the vasomotor system. The left ventricle dilates as well as the blood-vessels themselves. Consequently the pulse is soft and compressible, though usually full, and is somewhat accelerated. Palpitation of the heart is common, and with it a corresponding throbbing of the arteries, which latter being most appreciated in the vessels of the brain gives rise to a severe throbbing occipital headache to which the name "powder headache" has been given. The dilatation of the arteries results in a marked reddening of the entire body surface, though with an increased poisoning some failure of circulation ensues and cyanosis more or less profound succeeds. Among others of the initial symptoms may be mentioned nausea and vomiting, diarrhea, more or less prostration with great languor, and eruptions of various kinds.

After a lapse of a week or ten days a sort of immunity, as far as the "powder headache" is concerned, is acquired by the new man; but as the drug is thrown off very soon after absorption, the immunity is by no means lasting, and a few days' absence from work is sufficient to destroy it entirely. Indeed, some of these men suffer from the "powder headache" every Monday morning. These symptoms, which might be called acute, are unfortunately not confined to those actually engaged in the work. The wives and children, friends, and even medical attendants suffer. The wives, if they attend to the laundry, are usually attacked every wash-day, and ironing is particularly liable to precipitate an attack on account of inhaling steam from the clothes. In time these women may acquire a comparative immunity, but still they usually suffer to some extent when ironing. Dr. Laws states that he himself, as well as his colleagues, has frequently had attacks of the headache, even after a short physical examination of the chest. Among the children, especially the younger ones, several deaths have undoubtedly been due to their having slept with their parents and inhaled the exhalations from their bodies.

Following the acute trouble, by a greater or less period of time, a chronic condition of dilatation of the heart and of the entire arterial tree supervenes. This varies much in degree, depending upon the amount of the substance handled each day, the length

of time exposed, and the individual resisting power; but it is present to some extent in all. The symptoms vary with the degree of dilatation; in mild cases an accentuated first sound with diffuse apex-beat is present; then arrhythmia, palpitation, shortness of breath on slight exertion; finally, incompetency of the valves with regurgitation of the blood, as indicated by murmurs over the various valvular seats. With this condition there may be any of the accompanying symptoms of impaired cardiac action. As far as the nervous system is concerned, there is usually a certain amount of mental hebetude, and especially is this the case during the working hours. A peculiar feature is the action of alcohol upon the victims of glonoinism, a small drink of whiskey often bringing on the symptoms of the primary attack of which we have spoken. The women are also subject to chronic glonoinism, and while the same course may be followed as in the case of their husbands, as a rule the symptoms are not so severe. With them, however, exophthalmic goitre is by no means uncommon; and menorrhagia and metrorrhagia, miscarriages, premature births, and comparative sterility are all more common than among their sisters not influenced by these peculiar conditions. The children of these people are far from strong, as compared with other children of the neighborhood, and are able to offer but little resistance to the onslaughts of disease, particularly infectious diseases and catarrhs.—*Journal of the American Medical Association*, March 25, 1899.

A SECOND CASE IN WHICH RECURRENT MAMMARY CANCER DISAPPEARED AFTER TREATMENT BY OOPHORECTOMY AND THYROID EXTRACT.

Dr. HERMAN published in *The Lancet* of June 11, 1898, a case in which recurrent mammary cancer had disappeared after oophorectomy and the continued administration of thyroid extract. He now adds (*Lancet*, April 22, 1899) to that report that the patient continues in good health (April, 1899), has no sign of recurrence, and has gained about five pounds in weight since that report was written. He also corrects an error in the report. It was said that the tumor was not examined microscopically. It was examined and found to be indubitably cancer. He has now to report a second case in which similar treatment has been followed by a like result.

The patient had had three children and two miscarriages, the last pregnancy being fourteen years ago. She first noticed a lump in her right breast towards the end of 1894, she being then aged forty-five years. In May, 1895, she went to the Middlesex Hospital, and on June 1 Mr. George Lawson removed the right breast with the fascia covering the pectoral muscle and four enlarged axillary glands. The growth on microscopical examination proved to be carcinoma. On October 21 of the same year she was readmitted with three nodules situated just beneath the scar and just external to the anterior axillary line, and two others just above the center of the scar. There were also further lumps in the axilla, which were thought to be enlarged glands. The nodules and enlarged glands were removed on October 23. The patient stated that "the old wound reopened" in April, 1896, and from that time continued to discharge. In November, 1897, she noticed a lump in the left breast. She was admitted into the London Hospital on July 11, 1898. There was then an ulcerated surface over the third and fourth ribs, depressed at its center and fixed to the subjacent parts, with thickened margins. Its general shape was that of an oblong with spurs projecting here and there, the dimensions of the oblong being three and a half inches by one and a half inches. In the right axilla was a depressed cicatrix fixed to the rib below, separate from the ulceration and without sign of recurrence of cancer. In the left breast was a lump of stony hardness which measured with calipers (the skin over it being therefore included) three and a half inches by two inches. The left nipple was drawn in, and there were hard, enlarged glands in the left axilla. The patient had menstruated regularly until six months before admission. Since then menstruation had been irregular, the last time being three months before admission.

On July 12 both ovaries were removed, and as soon as the vomiting caused by the anesthetic had subsided the patient was put upon thyroid extract, five grains three times daily. This she has taken ever since. She left the hospital on August 5. Her weight was then 12 stone 2½ pounds. She came to report herself on September 15. The ulcer had completely healed. The left breast was much softer. Her weight was 13 stone 7½ pounds. She was next seen on October 14. The scar in the right axilla was movable. There was no distinct lump in the left breast,

and there were no enlarged glands in the left axilla. On March 28, 1899, her weight was 14 stone 10 pounds. There were some keloid-like nodules in the scar, but these had not grown and showed no tendency to break down. The left breast presented the characteristics of health, except that the nipple was retracted. Her right arm and hand swelled occasionally after scrubbing, but this had been the case since the first operation.

Two points call for comment. First, as to the relative importance of the two parts in the treatment—oophorectomy and thyroid extract. Mr. Stanley Boyd thinks that oophorectomy alone will explain the benefit in Beatson's cases. He has treated seven cases and Mr. Watson Cheyne two by oophorectomy, but in only one was there benefit great enough to be called cure. He has collected six other cases in which the information given was not enough to enable the cases to be tabulated, and out of the whole fifteen, in only four was there "relief worth obtaining." In the face of this experience Dr. Herman says he cannot agree with Mr. Stanley Boyd in thinking that oophorectomy alone will explain the benefit.

Mr. Stanley Boyd has published five cases in which thyroid extract was given. In one it was only given for a month; in another it was not begun till oophorectomy had failed and recurrence had taken place; in three other cases he gave thyroid extract to patients whose ovaries had not been removed, and in two of them some benefit seemed to follow.

Page and Bishop have published a case in which cure followed administration of thyroid extract. Four cases have now been published of cancer treated by oophorectomy plus thyroid extract, and in three of them the cancer disappeared.

Dr. Herman submits that the evidence at present before the profession goes to show that greater benefit results from the combination of oophorectomy with thyroid extract than from either of them separately, and that it is desirable that the effects on cancer of the combination of oophorectomy with thyroid extract should be tested as fully as possible.

Next, as to the word "cure." No one can say that these patients have been in the strictest sense of the word "cured" until they have been watched through the remainder of their lives. But Dr. Herman submits that to make cancer disappear is a much greater thing than to mechanically remove it with the knife; and if we can maintain that condition of the organism which led to the disappearance of already formed cancer tissue, we may reasonably expect that this condition will be incompatible with return of cancerous growths. These patients cannot develop new ovaries, and they have been instructed to take thyroid extract for the rest of their lives. If they do so, Dr. Herman thinks there is a sure prospect of freedom from cancer. In conclusion, he asserts that oophorectomy plus thyroid extract has given results which have not been approached by any other treatment of recurrent mammary cancer.

PREGNANCY AND THE THYROID GLAND.

During pregnancy, and even to a slight extent during menstruation, the thyroid gland undergoes more or less pronounced enlargement. This becomes noticeable toward the fifth month of gestation, and continues until the end of the puerperal period; and it is a physiological fact to which, perhaps, sufficient attention has not been paid, for it may possibly help to explain a whole train of nervous symptoms of which, so far, no explanation has been attempted. The first question that suggests itself is whether the enlargement is due to simple hyperemia or whether it is a genuine hypertrophy. To determine this point Dr. Lange, of Berlin, administered thyroid preparations to several pregnant women under his care, with the result that under this treatment the gland diminished in size, the engorgement reappearing as soon as the treatment was suspended. He infers from this fact that the enlargement is really of the nature of hyperplasia, such hypertrophy being a strictly physiological process. The only possible explanation of this phenomenon is that there exists in the blood of pregnant women a substance or substances peculiar to this state, capable of acting directly upon the thyroid gland.

It must, however, be borne in mind that all pregnant women do not display this tendency to enlargement of the thyroid. Thus of 133 women observed during the last three months of pregnancy, twenty-five did not exhibit any tendency to glandular enlargement, but of these twenty-five no less than eighteen were suffering from albuminuria of pregnancy. As, on the other hand, women suffering from chronic nephritis exhibit this gestation goitre in the usual way, Dr. Lange concludes that the thyroid hypertrophy is more likely to be

absent in women who fall victims to one or other of the renal affections associated with the pregnant state. It is obvious that the non-existence of "gestation goitre" cannot be due merely to the existence of the albuminuria of pregnancy, seeing that the latter makes its appearance, as a rule, much later than the hypertrophy of the gland; and, moreover, it has been shown that Bright's disease by no means interferes with the development of this ephemeral variety of goitre.

Comparative experiments on pregnant cats seem to show that pregnant animals require a larger volume of thyroid gland for the maintenance of health than non-pregnant animals, and when more than four-fifths of the gland is removed the animal develops tetany, which subsides under the administration of thyroid extract. Moreover, in a cat possessed of sufficient thyroid gland to maintain health under ordinary circumstances, the supervention of pregnancy is soon followed by symptoms of more or less pronounced renal disease. Clinical experience, as far as it goes, seems to confirm these experimental data, for Dr. Lange has had under observation two women who during their first pregnancies had albuminuria and no goitre, whereas in subsequent pregnancies they presented this hypertrophy of the thyroid gland and no albuminuria. These facts would seem to warrant the inference that there is a close relationship between the activity of the thyroid gland and that of the kidneys, and it is conceivable that another field of usefulness may be opened out for this protean medication, not only in obstetrics, but also in gynecology, for it is quite possible, though no clinical demonstration thereof is as yet available, that some forms of dysmenorrhea may be dependent upon deficient activity of the thyroid gland, the importance of which in the animal economy has so recently been demonstrated.—*Medical Press and Circular*, May 3, 1899.

JUSTUS'S TEST FOR THE DIAGNOSIS OF SYPHILIS.

CABOT and MERTINS, in the *Boston Medical and Surgical Journal* of April 6, 1899, record their views concerning this test. In two papers published in 1895 and 1897 respectively a new test for the diagnosis of doubtful cases of syphilis was described by Justus, an assistant in Schwimmer's clinic at Budapest. The test depends upon the sensitiveness of the red blood-corpuscles in syphilitics to the action of mercury exhibited by inunction, or by subcutaneous or intravenous injection. This sensitiveness, which is said by Justus to be greater in syphilis than in any other disease, is shown by a sudden sharp fall in the percentage of hemoglobin during the hours immediately following the administration of the drug. Later the hemoglobin gradually rises to a point above that seen before the injection. Such a sharp fall of ten to twenty per cent in the hemoglobin following the use of mercury was observed by Justus in over 300 cases of syphilis, and the absence of any such fall in non-syphilitic cases was attested by "very numerous" control experiments.

The sign was observed in all untreated cases of the secondary, tertiary, or congenital form of the disease, and in thirteen out of sixteen cases in which only a fresh chancre and inguinal adenitis were present. "Latent cases," so called, showing no lesion, and cases in which the lesions have passed their acme and are subsiding, either spontaneously or under treatment, do not react characteristically to the test. It is therefore in florid cases with advancing lesions of whatever type that the test is positive. This includes relapses of all kinds so long as the lesions are in active condition.

The amount of the fall in hemoglobin after a given dose of mercury depends, according to Justus, on the severity of the disease and the condition of the patient. The same conditions determine how soon the blood shall return to its normal condition.

If a subcutaneous or intravenous injection is given the characteristic sharp fall in hemoglobin usually follows each of the first three or four doses, while if the method of inunction is used the hemoglobin falls only after the first inunction. If the drug is given by mouth no effect on the blood is to be observed. Intravenous injections act so rapidly that within an hour a loss of fifteen per cent of coloring matter has been noted. Microscopic examination of the blood immediately after an intravenous injection of mercury (corrosive sublimate, one to six milligrammes, in from 1000 to 3000 parts of normal salt solution) showed evidences of destruction of red corpuscles, with hemoglobinemia and an increase of urobilin in the urine. This is very transitory, however.

As an example of the value of the test in differential diagnosis, Justus quotes a case of advanced pulmonary tuberculosis in a man who had had syphilis nine years before. An

ulceration of the larynx existed, and experts differed as to whether it was a syphilitic or a tubercular ulcer. Justus's test was negative, and it was confirmed by the results of the autopsy, which showed a tubercular and not a syphilitic process.

Charts indicate the daily changes in the hemoglobin in two typical cases published by Justus. The first chart shows the course of the hemoglobin in a case of syphilis treated by inunctions, the crosses marking the times at which the drug was given. The sharp initial drop followed by a gradual rise is well shown. The second chart shows the effect of intravenous injections of corrosive sublimate (one to six milligrammes, diluted 1000 to 3000 times). Here not only the first administration of the drug but the three succeeding ones are followed by considerable losses in hemoglobin, and it is only after the first injection that a steady rise takes place.

In the summer of 1898, at the out-patient department of the Massachusetts General Hospital, Cabot and his colaborer tried this test in seven cases of undoubted syphilis, four cases suspected of being syphilitic, and thirty-three control cases of various other diseases —a total of forty-four cases. Inunctions were used in all cases, from fifteen to forty grains of the unguentum hydrargyri being given to each patient, with directions how to apply it.

The hemoglobin was tested before the inunction, and then twenty-four hours later; the tests being all performed by the same observer with the same instrument and under similar conditions. A change of less than ten per cent was not counted as a positive reaction.

In a general way the results centainly tend to confirm the statements of Justus. All the syphilitic cases reacted strongly and characteristically, and in thirty-three control cases there was but one genuinely positive reaction.

The seven active syphilitic cases lost an average of twenty-one per cent of hemoglobin after one inunction. This is surely not accounted for by errors in technique, and is in very marked contrast with the figures obtained in the control cases. Of these only two out of thirty-three showed any considerable change after the inunctions. Slight gains and slight losses are recorded by all within the limit of error, except two cases. One of these was a case of tertian malaria in which a chill occurred just after the inunction. This is sufficient to account for the loss of ten per cent of hemoglobin. The other was a case of chlorosis; in this a typical positive reaction was obtained with a loss of thirteen per cent in hemoglobin. So far as it goes, this case certainly tends to diminish the value of Justus's test. No evidence of syphilis was present and no history of it.

Results: (1) Positive reactions in seven cases of syphilis; (2) negative reactions in thirty-two control cases of other diseases; (3) positive reaction in one case of chlorosis.

PNEUMATIC MASSAGE IN THE TREATMENT OF DEAFNESS AND TINNITUS.

WEBSTER reports five cases treated by pneumatic massage. They include conditions resulting from chronic suppuration of the middle ear, varying from small perforation to complete destruction of the tympanic membrane. These observations were made on cases where suppuration had ceased and the middle ear was dry. The hearing was markedly improved in all but the first and second. In the first, it is noted, the gain was very slight; in the second, that a slight primary gain was followed by a slight loss. The tinnitus was markedly relieved in the first case; temporary relief only after each treatment in the second; lessened in the third; permanently relieved in the fourth; lessened in the fifth. The cases showing the greatest gain in hearing were those in which suppuration had recently ceased. The case which showed relief of tinnitus permanently was not a recent case. Webster concludes that in the class of cases above mentioned pneumatic massage may be of considerable value in addition to other means of treatment. He was unable to realize any greater benefit from very rapid vibrations than from slow. He therefore sees no advantage to the patient in a motor, but thinks the Siegle speculum with the hand-bulb would do equally well. The rapid vibrations were attended with some noise, which was at times disagreeable to the patient.

PERCUSSION OF THE CRANIUM.

GILLE DE LA TOURETTE and CHIPAULT (*La France Médicale*, No. 13, 1899), recognizing the fact that the thickness of the skull of the normal individual, though it has been carefully studied out, is of little service as a guide to the surgeon in individual cases of disease, have endeavored to provide a

reliable means of determining this matter by percussion. They employ either a small mallet, or, preferably, the finger; the latter conveys the sense of elasticity and of resistance, which after practice can be justly interpreted. This percussion should be practiced with the mouth of the subject closed. The percussion note is resonant in the child; dull in the adult, especially in the male; less dull in the aged. It is more resonant in the frontal and parietal regions than about the occiput. The authors report five cases which they believe show the value of percussion. The first was trephined because of mental symptoms following trauma; the note over the entire frontal region was dull, as compared with the note elicited from the normal heads of the attending surgeons. The frontal bone was found on operation to be greatly thickened and dense in structure. One case of trephining practiced for the removal of a neoplasm, which was not found, gave a clear percussion note; the skull was extremely thin. One trephining practiced for old trauma gave a normal percussion note, and the skull was of normal thickness. The other cases were equally satisfactory to the authors, who announce that the resonance of the cranial region varies according to the thickness of the bone, being greatest when the bone is thinnest, and inversely. They also detected a "cracked-pot" sound in the case of old fracture, and express the hope that this may be a valuable means of diagnosing fractures of the skull which are accompanied by no other pathognomonic symptom.

A METHOD FOR THE REDUCTION OF DISLOCATION OF THE HIP.

STURROCK (*British Medical Journal*, April 8, 1899) thus describes a method of reducing dislocation of the hip: The patient, being laid upon his back on the floor, is put under the influence of an anesthetic. The surgeon kneels upon his left knee when the left hip is dislocated, and on the left side of the patient. The patient's thigh is then carefully flexed to a right angle, and while this is being done the leg is also flexed to a right angle, and laid with the most prominent part of the calf on the right knee of the surgeon. The ankle is then firmly grasped with the left hand, and the condyles of the femur with the right. The thigh is then abducted for thyroid dislocations, adducted for dorsal and pubic, and rotated in for all, by drawing the foot away from the middle line and keeping the knee steady. Traction is now made by steadily depressing the ankle, the surgeon using his knee as the fulcrum; the patient's leg makes a most powerful lever, and the pelvis can be easily raised off the ground if necessary, the weight of the body acting as counter-traction; then finally the thigh is rotated out, and while this is being done the head of the femur slips into the acetabulum.

WOUNDS OF THE PERITONEAL PORTION OF THE RECTUM.

QUÉNU (*Revue de Chirurgie*, January, 1899) points out that in cases of wound of the rectum it is very important with regard to prognosis and treatment to determine as soon as possible whether the abdominal cavity has or has not been penetrated. To a collection of thirty-five previously recorded cases of penetrating wound of the peritoneal portion of the rectum, this surgeon adds one under his own care in which laparotomy was performed with good results. Notwithstanding the facilities afforded by the use of the rectoscope in exploration of the rectum, it is very difficult to make out whether the wound has penetrated or not, especially if the examination be made soon after the receipt of the injury, and before there are any indications of abdominal mischief. The author advocates laparotomy both in cases in which there can be no doubt as to penetration, and also in doubtful cases in which there are some signs of commencing peritonitis. In six of the thirty-six collected cases laparotomy was performed four times with success, twice with fatal results, the mortality being thus 33.3 per cent. Of twenty-nine patients on whom laparotomy was not performed, twenty-four died, the mortality being eighty-two per cent.

In describing the details of his treatment of a wound extending from the rectum into the peritoneal cavity, the author insists on the importance of prompt laparotomy, of elevation of the patient's pelvis during the operation on an inclined table, of free exposure of the interior of the pelvis by upward displacement of the small intestines, of careful examination of the bladder and sigmoid flexure, which might also be involved in the injury, and of prolonged and thorough cleansing of the abdominal lining and contents by warm artificial serum. The duration of the operation and the chief difficulty will, as a rule, vary according to the seat of

the penetrating wound. Whilst such a wound of the sigmoid flexure may be readily and speedily closed by a double row of sutures, it will be found a very laborious task to reach and close an opening situated at the bottom of the rectovesical pouch. Much of this difficulty, it is thought, might be overcome by elevation of the anterior wall of the rectum by means of a carefully distended elastic bag.

THE TREATMENT OF FAVUS.

VON PETERSON (*Berliner Klinische Wochenschrift*, No. 15, 1899) applies a two-per-cent carbolic acid ointment to the scabs three times a day until they are softened and removed. The diseased area is then painted every second or third day with iodine tincture. Epilation is not always necessary. A cure may require a ten months' course of treatment.

HERPES AS A FORERUNNER OF CHANCRE.

ANDERY (*Berliner Klinische Wochenschrift*, No. 15, 1899) has noted in a number of cases preputial herpes preceding the development of a chancre, and regards the outbreak of an eruption of this kind in a young man who has been exposed to the disease as highly suggestive of syphilitic infection.

THE TREATMENT OF PROSTATORRHEA BY PROSTATIC SUBSTANCE.

OPPENHEIMER (*Berliner Klinische Wochenschrift*, No. 15, 1899), led thereto by the published reports of the excellent results of organotherapy, has been administering prostatic substance to patients suffering from non-gonorrheal prostatorrhea. He notes as a result a rapid and permanent cure. The treatment is contraindicated by the presence of the gonococci. The dosage and method of preparation are not mentioned.

THE OPERATIVE TREATMENT OF VARICOSE VEINS.

PIERCE GOULD (*The Lancet*, April 8, 1899) reports fifty cases of Trendelenburg's operation for varicose veins. It will be remembered that this operation consists in excision between double ligatures of a short piece of the internal saphena vein in the thigh, the object of this procedure being to protect the varices from the pressure and reflux of blood from the common femoral vein and venous trunks above it.

In any attempt to appreciate the value of this operation, an account of its immediate results up to the time the patient leaves the surgeon's hands is of no value. It is all-important to learn the later history of the patient. This Gould has been able to do in thirty-nine out of the fifty cases, and personally has seen twenty-five of them. In no single instance did the operation fail to relieve the patient of all pain, and it was invariably followed by a marked, often a very marked, shrinking of the dilated veins, sometimes to quite their normal size, in others to just short of that. This shrinkage may progress for many months. In no case did thrombosis develop above the ligature. The patients are usually kept in bed but a week.

One of the most troublesome complications of varicose veins is aseptic thrombosis; it is sometimes very painful, and is not free from danger to life from embolism, and the course of the disease under the common palliative treatment is often exceedingly slow and not infrequently followed by relapse. Under these circumstances it is reasonable to try whether surgery does not afford a better means of dealing with these cases than the older methods of rest, local sedatives, moderate diet, alkalines, salines, and great patience. Thus Gould has treated two cases of aseptic thrombosis by excision of the thrombosed portion of the vein and immediate closure of the wound. Union by first intention was obtained.

EXPLORATORY OPERATIONS UPON THE STOMACH FOR OBSCURE AND OBSTINATE GASTRIC SYMPTOMS.

Under this title MAYLARD (*The Lancet*, April 8, 1899) holds that there should be less hesitation than is at present exhibited in opening the peritoneum and subjecting the stomach to a thorough manual exploration in cases characterized by obstinate gastric symptoms. He quotes Kocher to the effect that he has regretted delay in operating often; operating, never. A reference is made to two cases—one reported by Bradford, the other by Treves—in which, though nothing definite was found, yet immediately a marked relief was obtained in each case. Robson, acting on lines somewhat similar, discovered by exploratory laparotomy that certain obscure gastric symptoms were due to adhesions involving some part of the external gastric apparatus, the separation of which resulted

in complete relief. He also showed that exploratory gastric operations have been the means of revealing obstruction at the pylorus as the cause of dilated stomach, and that the treatment of this obstruction has led to the disappearance of all symptoms of tetany from which the patient had suffered.

As a case in point, Maylard quotes the following experience: The patient, fifty-five years old, three years before he came under observation began to suffer from pain in his back, which soon shifted to the epigastrium, where it remained continuously. It was burning and gnawing in character, and located just below the ensiform cartilage. It was somewhat aggravated by hunger, and was frequently relieved by the ingestion of food. He never vomited, but was flatulent. There was pain on pressure over the affected area, and the stomach was apparently dilated. There was also a mitral murmur. No improvement followed medical treatment and lavage. Laparotomy was performed; the stomach was freely withdrawn through the parietal wound, and its anterior wall was incised. Nothing abnormal could be found. The opening in the stomach was then closed, and the anterior wall was tucked in and secured by sutures for the purpose of lessening the dilatation. The next day the patient vomited two and a half pints of pure blood. The wound was reopened, and a small bleeding vein was found at the margin of the incision. Three pints of hot normal saline solution was injected into the median cephalic vein; the stomach was freely washed out, much blood-clot being thus removed.

The patient completely recovered, gaining weight, and remaining free of his pain.

CONTRAINDICATIONS TO PARACENTESIS IN SEROFIBRINOUS TUBERCULOUS PLEURISY.

MOLLARD (*Lyon Médical*, No. 15, 1899) strongly argues against paracentesis for relief of serofibrinous pleural effusion which is slow in being absorbed, unless the pressure exerted by such an effusion is immediately threatening to life. He states that clinical experience, pathological anatomy, bacteriology, all teach that intervention under such circumstances directly interferes with nature's method of accomplishing a cure. Moreover, by tearing the new membrane which has been formed, and by wounding blood-vessels and lymphatics, it opens the entire system to infection. The serum has a distinct inhibiting effect upon the bacilli, and the false membrane formed serves to limit them until their toxic and multiplying powers have been destroyed. When this has been accomplished, in the vast majority of cases the serous effusion will be absorbed.

THE PRESENT POSITION OF THE PESSARY IN GYNECOLOGICAL PRACTICE.

BALLANTYNE (*Scottish Medical and Surgical Journal*, April, 1899) thus sums up the advantages of the pessary in gynecology:

1. All the strong supporters of treatment by pessaries emphasize their convenience. An occasional visit to a gynecologist, occupying probably only a few minutes, frequent vaginal douching, which possibly would be required anyhow, a transitory feeling of uneasiness in the pelvis when the pessary does not exactly fit or has been worn rather too long, cannot surely be regarded as sufficient reasons for advising a patient to face the ordeal of a plastic operation with all its inconvenience, its expense, and its enforced confinement to bed for a longer or shorter time. As Mundé puts it, "Not every patient who has a displacement of the uterus wishes to be operated upon for its permanent cure." Further, there are the cases in which it is impossible for the patient, either on account of her advanced age or her occupation, to have any operation at all; in such instances the pessary becomes a great convenience.

2. The opinion of all who make use of pessaries in their gynecological practice is that they are undoubtedly effective in relieving symptoms. Some go further and state that they in many cases produce a permanent cure in a longer or shorter time. Mundé, speaking of recent displacements, affirms that in about twelve cases in a thousand the pessary may in a year or two be no longer needed. He says further: "No tampons, no astringents, no massage, no electricity, no posture, no baths, no vaginal douches, will, in my experience, take the place of a properly fitted vaginal pessary." Herman, writing on prolapse, says that "if a vaginal pessary is retained and keeps up the uterus, relief is almost complete and greater than can be obtained in any other way;" and in referring to chronic retroflexion, he believes that only about one case in fifty calls for any other methods of treatment than that by pessaries. Lewers goes further than most of the advocates of the preferential treatment of displacements by pessaries, for he affirms

in relation to prolapse that "no plastic operation will cure cases of procidentia; no matter how complete the success of the operation may appear at the time, unless the patient wears a pessary the displacement will most probably return as badly as ever. If, however, she wears a ring, a permanent condition of comfort is obtained." Macnaughton-Jones has no doubt as to the efficiency of the well adjusted pessary, for he asserts that "in all forms of displacement where its employment is clearly indicated, it generally gives material relief." The advocates of pessaries may differ in their views as to the manner in which these instruments relieve symptoms, but that they do relieve symptoms all are agreed. That they are an effective means of treating displacements is, therefore, urged as their great advantage.

3. Most gynecologists freely admit that the ordinary vaginal pessaries used with ordinary care are perfectly safe; but those who strongly advocate their use claim that even intra-uterine stems and instruments of the Zwanck type are quite innocuous. The bad results that are occasionally reported are ascribed by these pessary partisans to want of care in adapting the pessary to the person, and to absence of precautions on the part of the patient in wearing it. Several writers state that pessaries of the nature of the Zwanck type must be taken out every night by the woman herself and replaced in the morning, and they do not apparently fear that she may be unable or unwilling to do so, nor do they dread any evil results from her want of knowledge of the anatomy of the parts. All these authors emphasize the safety of the pessary as contrasted with the danger of other, and especially of surgical, methods of treating displacements; and to them the remark made by Lawson Tait that he is certain that removal of the ovaries is "a far safer proceeding than the employment of intra-uterine stems, and has the merit of being effectual," must appear extraordinary indeed.

The alternative kinds of treatment in incomplete prolapse, with a certain degree of perineal efficiency, may be stated to be: (1) The purely palliative plugging of the vaginal vault with glycerin or ichthyol tampons, with or without rest and douching; (2) uterine curettage to diminish the uterine subinvolution and restore tone; (3) anterior colporrhaphy, especially when there is marked cystocele; (4) perineorrhaphy even when the perineum is not markedly defective; (5) ventrofixation of the uterus (not often); and (6) Alexander's operation (not often).

In cases of complete prolapse, where the perineum has almost or entirely lost its power of retaining a pessary in the vagina, the only form of support which is possible is the stem, with an abdominal belt and outside straps and perineal pad. The only cases in which most gynecologists would countenance the wearing of such supports are in old women who either refuse or who are too weak to be subjected to operative procedures, or in younger women who absolutely decline to be relieved in any other way. The most hopeful view that one can take of treatment by pessaries in these cases is that by their means a complete prolapse is turned into an incomplete one, and that in time it may be possible to replace the stem and outside straps by a single vaginal pessary. The alternative procedures to pessaries in the treatment of complete prolapse are: (1) perineorrhaphy; (2) colporrhaphy, anterior or posterior, or both, with or without perineorrhaphy; (3) ventrofixation of the uterus; (4) Alexander's operation; and (5) vaginal hysterectomy.

Most authors are now agreed that to try to treat anteversion of the uterus by pessaries is to use means which are inadequate to remedy a condition which is not itself productive of trouble. If, however, an enlarged, chronically inflamed uterus is more or less fixed in an anteverted position, then symptoms arise which are due immediately to the metritis. Consequently most gynecologists treat the metritis and the metritis only, and in doing so do not invoke the help of pessaries; but some think that the insertion of an indifferent pessary, such as the ring, is of value in hastening the cure by raising the uterus.

Most authorities are now agreed that a congenitally fixed and flexed uterus is not amenable to treatment by pessaries. Another point about which there seems to be general agreement is that no vaginal pessary will straighten an anteflexed uterus even when the uterus is fairly movable. The question in anteflexion and its treatment by pessaries has therefore narrowed itself down to the justifiability of employing intra-uterine stem pessaries. Even strong advocates of treatment by mechanical supports are in doubt whether the risks attendant upon wearing intra-uterine stems do not more than counterbalance any good effects which may arise therefrom. Various devices have been adopted to render intra-uterine stems innocuous, and

while it cannot be said that any one has succeeded, it may be admitted that the entirely intra-uterine (*i.e.*, without a vaginal portion) pessary recently brought forward by Lefour comes nearest the standard. It has been not infrequently claimed by the advocates of intra-uterine stems that menstruation, scanty and accompanied by great pain before the introduction of the stem, becomes profuse and painless after it has been placed in the uterus; but opponents of the stem point out that the pessary in such cases, instead of draining away discharge, has really produced the discharge by setting up suppuration, and has led to lesions that take months to heal.

While pessaries are coming to be looked upon as unnecessary and ineffective in anteversions, and as temporary and palliative props in prolapsus, it is evident that the mind of the profession is far from made up on the question of their use in retroversions of the uterus. J. C. Webster divides cases of retroversion into seven classes and gives special directions for the management of each.

In retroversion with a uterus fixed by peritonitic adhesions no pessary is to be used.

In retroversion with a freely movable uterus, not enlarged, and with no pelvic trouble, there is no necessity for reposition and the pessary, but if there is bronchitis or the lifting of weights, then it is well to keep the uterus anteverted by a pessary.

In retroversion of a freely movable puerperal uterus with no pelvic trouble, there is no need for a pessary, but if there are to be strains and lifting weights, then use a Hodge or Smith pessary.

In retroversion of the pregnant uterus use a Hodge or Smith up till the fourth month.

In retroversion with a movable uterus, with pelvic symptoms, but with neither ovary in the pouch of Douglas, use the Hodge or Smith.

In retroversion of a movable uterus with pelvic symptoms, and with one or both ovaries in the pouch of Douglas, use no pessary till the ovarian inflammation has been diminished by douching and plugging, then use first the ring, and afterwards the soft Hodge or Smith or Thomas.

In retroversion of a movable uterus with pelvic symptoms and old posterior perimetritis or cellulitis, follow much the same lines as those in the preceding rule.

SENILE ENDOMETRITIS.

LORAIN (*Annals of Gynecology and Pediatry*, May, 1899; quoted from *La Revue Médicale*) states that this disease is comparatively rare, forming a little over seven per cent of all cases of endometritis. One of the first symptoms of senile endometritis is a semipurulent yellow or greenish discharge, often streaked with blood, and occasionally offensive; the discharge is sometimes continuous, sometimes intermittent. Metrorrhagia is not rare, and is occasionally so marked as to give rise to what is described as the hemorrhagic form of the disease; the loss of blood is, however, rarely great, and never by itself constitutes a grave symptom.

The disease is usually but slightly painful, the subjective symptoms being limited to a feeling of weight in the hypogastrium and to sacralgia.

Sometimes, however, the patient complains of smarting and itching about the vulva; in most cases this is due to the irritation of the discharge, but occasionally no signs of inflammation are present. Frequency of micturition and pain after the act are sometimes observed.

There is little tendency for the inflammation to spread to the Fallopian tubes, but it does occasionally take place. Perimetritis and parametritis are practically never found.

The uterus is usually found to be of normal size, mobile, but slightly tender; the speculum reveals a cervix more or less inflamed, of a deep-red color, swollen, and smooth. Cervical erosion is rare.

The course of the disease is essentially a chronic one; the symptoms become more marked after exertion and fatigue; but the acute or subacute exacerbations found in endometritis anterior to the menopause, and probably due to menstrual congestion, are not found in senile endometritis.

The general condition of the patient is always to some extent affected by the disease; loss of flesh, anemia, dyspeptic troubles, occasionally rigors and night sweats, and, in fact, a condition of cachexia more or less marked, are found.

The diagnosis of senile endometritis is of the greatest importance, owing to the resemblance its symptoms bear to those of cancer of the body of the uterus. The treatment depends essentially on an accurate differential diagnosis. If the disease is merely endometritis, medical treatment will always guarantee a cure. On the other hand, if the disease is cancer of the body, hysterectomy, at least in the early stages, is the only rational treatment, and the prognosis becomes grave, not only by reason of the dangers of

the operation itself, but also because of the grave risk of a recurrence of the disease.

Treatment should have two ends in view: (1) To allow of the free escape of the secretions of the uterine mucous membrane; (2) the application of antiseptics to the interior of the uterus.

The free escape of the contents of the uterus is of special importance, since, as long as these are pent up in its cavity, no cure can be expected. Generally speaking, the dilatation of the cervical canal is best effected by Hegar's dilators; but cases arise in which the stenosis of the cervical canal is so advanced that the smallest dilator cannot be introduced; in such cases dilatation must be obtained with laminaria tents. It is generally sufficient when the passage of Hegar's No. 7 or No. 8 can be effected, but this will often require two or three sittings at intervals of twenty-four or forty-eight hours. After dilatation, one of the following solutions should be applied to the cavity of the uterus:

Creosote,
Glycerin,
Alcohol, equal parts of each.

Or,

Ichthyol, 10 parts;
Glycerin, 40 parts.

Or,

Pure tincture of iodine.

These are introduced into the uterus by means of a flexible sound, the last two inches of which is surrounded by cotton-wool; this is then soaked in the solution and applied to the whole surface of the uterine mucous membrane.

The treatment should be renewed two or three times a week, and in the intervals a drain of antiseptic gauze should be left in the uterus, a tampon of similar gauze being left in the vagina.

As the cervical canal tends to contract again between the dressings, it will be found necessary to further dilate it from time to time.

The duration of treatment carried out according to the above principles will be found to be approximately from three to four weeks.

TOXIC INFLUENCE OF CHLOROFORM.

SCHENK (*Centralblatt f. Chirurgie*, No. 19, 1899; quoted from *Zeitschrift f. Heilkunde*) reports the case of a woman subjected to a half-hour's narcosis for extirpation of the uterus, an ovarian cyst, and a right-sided pyosalpinx, who three days afterwards died of cardiac failure and renal affection. Section showed a well marked fatty degeneration of the heart, liver, and kidneys. The author ascribes this degeneration to the action of the chloroform upon organs previously weakened by septic fever. These findings correspond to those frequently observed in patients who die a few days after the administration of chloroform. Schenk conducted an experimental investigation upon monkeys and dogs for the purpose of finding out how soon after narcosis fatty degeneration became demonstrable in the organs, and when it disappeared and there was a return to the normal. He came to the conclusion that the fat which appeared a few days after chloroform narcosis did not disappear for days or even weeks; that even after ether narcosis fatty degeneration was to be noted in the liver, although it was less marked than when chloroform had been used. Therefore, he warns against the use of chloroform excepting when it is absolutely necessary, and especially he objects to the practice common in gynecological clinics of narcotizing individual patients frequently, at short intervals, for the purpose of establishing a positive diagnosis. It is obvious that if a single chloroformization causes a moderate degree of fatty degeneration which persists for some time, a second anesthetization may increase this change to a dangerous degree.

THE TREATMENT OF TUBERCULOSIS OF THE TESTICLE.

BERGER (*Journal des Praticiens*, No. 16, 1899) states that castration should be employed in beginning tuberculosis when the lesions are rapidly progressing and unilateral; that involvement of the deferent canal and even the seminal vesicle is not a contraindication to the operation; that this procedure should be completed by extirpation of the entire deferent canal even when this seems perfectly healthy. If the seminal vesicle participates in the tuberculous degeneration, it can be extirpated either by the inguinal route, or better still, by the perineal incision. In all cases where a tuberculous testicle is one of the principal causes of alteration in the general health, of pain, or of general weakness, even though there exist tuberculous lesions in other parts of the body, castration should be performed—not, however, if both testicles are involved.

CÆSARIAN SECTION BY MEANS OF A TRANSVERSE INCISION OF THE FUNDUS.

THUMIN (*Centralblatt f. Gynäkologie*, No. 19, 1899) reports a case of Cæsarian section in which after exposure of the uterus its cavity was opened by a transverse incision, carried across the fundus from the insertion of one tube to that of the tube of the opposite side. The delivery of the child with the placenta, he states, is extremely easy, and the bleeding from the incision very slight. After contraction of the uterus the wound became, as Fritsch states, surprisingly small. Silk sutures carried through the entire thickness of the uterine wall, and a serous membrane suture of very fine thread, completely closed this wound. Braitenberg has collected fifteen cases in which this transverse incision was employed, and reports the sixteenth himself. The chief advantages claimed for this incision are that it spares the lower uterine segment, and that it enables the fetus more readily to be delivered.

OLD DISLOCATIONS OF THE SHOULDER.

DUPLAY (*Le Progrès Médicale*, March 4, 1899; quoted from the *Montreal Medical Journal*, May, 1899) deals especially with old dislocations. How are they to be treated? He would classify those of six weeks' standing as old. In recent dislocations the difficulties occasionally experienced in effecting reduction are numerous. The head of the humerus may have traversed an intermuscular space. More frequently the ligament offers an opposition almost impossible to overcome, or the capsule may be in the way of the return of the head. If the great tuberosity is torn off the difficulties are still greater.

In old dislocations the difficulties arise from changes in the muscles, ligaments, and bones.

The anterior part of the capsule retracts and the posterior part covering the glenoid cavity forms adhesions with it which oppose the replacement of the head. The tuberosity when torn off may lie against the glenoid, become engaged in callus, and thus form an obstruction. Again, a new pseudocapsule gradually forms. Malgaine has drawn attention to the formation of fibrous bands adherent sometimes to the vessels; and the result of tearing these vessels by violent manipulation is easily understood.

The muscles become displaced and form adhesions in their new situation, and the long head of the biceps is especially mentioned as obstructing in this way.

The glenoid contracts and may form a part of the new articular cavity. The head of the humerus becomes altered in shape and occasionally gives origin to bony overgrowth.

The ideal treatment is to effect reduction, as in recent cases. Unfortunately, this is often impossible. Kocher has frequently succeeded by his method after the lapse of three or four months, although dislocations eight years old are said to have been reduced by manipulations. Failing reduction by manipulation, M. Duplay recommends incision and reduction after loosening the head of the bone, providing it can be done without too great a division of muscles and adhesions. Otherwise a resection of the head of the bone gives a very good result.

VACCINATION FOR HYDROPHOBIA AT LILLE.

From the 12th of February, 1895, to the 1st of January, 1899, 796 persons who had been bitten were treated at the Pasteur Institute at Lille. Two hundred and thirty-three were bitten by animals in which the presence of hydrophobia was proven by inoculation; 325 were bitten by animals in which hydrophobia was diagnosed by veterinary surgeons; finally, 234 were bitten by animals in which hydrophobia was simply suspected. The average length of the treatment was eighteen days. Five people died of hydrophobia in spite of the treatment, giving a total mortality of 0.62 per cent. There were 771 dog-bites, 22 cat-bites, 2 horse-bites, and 1 ass-bite.—*Lyon Médical*, No. 18, 1899.

THE TREATMENT OF HEMORRHOIDS.

SCHWARTZ (*Journal des Praticiens*, No. 16, 1899) states that the indications for operation in cases of hemorrhoids are: bleeding, pain, an abundant mucous discharge, habitual procidentia, and ulceration. Operation is not advisable when the hemorrhoids are painless and uncomplicated, and when they are symptomatic of lesions of the pelvis or viscera. Moreover, when they are accompanied by regular bleeding, and occur in gouty patients without apparently influencing the general health, the general treatment so well known is advised. As to the operative treatment, the value of dilatation

is again insisted upon. Cauterization is considered *par excellence* the best method. Each small tumor is seized in forceps and cut away with a hot iron. This, it is stated, can be done painlessly after first freezing the mass which has been seized, by chloride of ethyl. The iron should be heated only to a dull red, as otherwise it will set fire to the ethyl vapor.

RECTAL INJECTIONS OF SALINE SOLUTIONS IN THE TREATMENT OF HEMORRHAGE, SHOCK, AND INFECTIONS.

LÉPINE (*Lyon Médical*, No. 18, 1899) closes a thesis on this subject with the following conclusions: There are two classes of phenomena dependent upon such injections. The first are physical or chemical, and correspond to those incident to blood transfusion, or the transfusion of artificial serum. The second are purely physiological and are not clearly understood. Intravenous and subcutaneous injections are not absolutely free of danger, and are somewhat difficult of application. Absorption of the saline solutions by the rectal mucous membrane is as easy and rapid as that which takes place when the solutions are injected beneath the skin. The therapeutic effect of the rectal injections is precisely the same as that of subcutaneous injections. The strength of the solution varies according to the indications.

THE PREVENTION OF POSTOPERATIVE THROMBOSIS IN VEINS OF THE LOWER EXTREMITY.

LENNANDER (*Centralblatt für Chirurgie*, No. 19, 1899), in commenting upon the frequency of the so-called milk-leg after all abdominal operations, states that he has had this complication occur in five cases of appendicitis operated on in the interval between the attacks. He notes that it is very commonly observed after all abdominal operations and after herniotomy, even when the wounds run a perfectly aseptic course, developing not infrequently two or three weeks from the day of operation. Thinking that perhaps compression exerted upon the femoral or long saphenous vein, due to the abdominal bandage, might have caused this complication, in some of these cases Lennander so placed his dressings that such pressure could not possibly be exerted, yet in spite of this thrombosis developed, sometimes involving not only the long saphenous and the femoral veins, but even the external iliac.

In view of the long confinement to bed necessitated by this complication, of the often permanent partial disability, and of the serious danger to life from secondary pulmonary embolus, a careful study was made as to the means by which this complication might be prevented. As to its cause, there can be little doubt that suppuration in or about the wound is a predisposing factor—not, however, a necessary one, since the complication develops after operations which run an absolutely sterile course. Toxemia, of intestinal origin, is no doubt a predisposing factor, yet the direct relation in individual cases often cannot be traced. Ziegler states that the two causes of thrombosis are a slowing of the circulation, and local alterations in the walls of the blood-vessels. Slowing of the circulation is often due to weakness in the heart's action, a common accompaniment of abdominal diseases requiring operation. It is further accentuated by meteorism, which materially interferes with the aspirating influence exerted by the normal chest upon the venous circulation. Local alteration of the blood-vessels, such as endophlebitis and fatty degeneration of the endothelium, is often primary and of local origin; often secondary to infection, or autotoxic alterations of the blood. The primary degenerations are noted in patients who suffer from varices, or those who before operation have suffered from slight thrombosis.

Lennander noted in his series of cases that the milk-leg was seldom observed after the extremely severe and complicated laparotomies, and explains this circumstance by the fact that the after-treatment of these cases was conducted with the lower end of the bed elevated ten to twenty inches, and that into the abdominal cavity of these patients there was often injected a pint to a quart of normal salt solution. On a basis of these observations, about the middle of 1897 he adopted, as a general practice after every abdominal or hernial operation, the elevation of the foot of the bed to a height of from four to twenty inches. Patients who were healthy before operation were subjected to moderate elevation; those who had been exhausted by previous disease, who were anemic, or had previously suffered from varices, were subjected to the highest elevation. If the position became unbearable, the foot of the bed was somewhat lowered, but never to a level less than four to six inches. It was kept in this position during the entire stay of the

patient in the hospital. When the blood-pressure was low, and the heart action weak or irregular, subcutaneous injections of normal saline were given, together with the usual stimulating heart tonics. Especial care was taken that the bandage did not press upon the crural vein, and very shortly after operation passive movements and light massage of the foot and leg were practiced. The patients were then instructed to move their legs as soon as practicable. In many cases, especially those suffering from varices, an elastic bandage was applied to the legs.

Since the period when this treatment was adopted the author had but a single case of thrombosis. A young, apparently strong student was operated on because of chronic appendicitis. The wound healed promptly and without suppuration. After about two weeks thrombosis began in the right leg; it extended upward and completely blocked the femoral vein. This was the only case in which the foot of the bed had not been elevated. The author therefore holds that by elevation of the foot of the bed this troublesome complication can in nearly all cases be prevented. He recommends this same measure in the treatment of many medical affections in which, because of long confinement to bed and the absorption of toxins, there develops anemia, and blood alterations which predispose to thrombus. Thus in typhoid fever, chronic enterocolitis, and chronic peritonitis, this measure is suggested even when thrombosis has begun. Elevation of the foot of the bed is advisable, since thus the return venous circulation is hastened and extension of the thrombus is limited, as it is well known that in circulating blood the fibrin ferment is quickly destroyed.

SUBCONJUNCTIVAL INJECTIONS IN CORNEAL AND IRITIC INFLAMMATIONS.

SMYTH (*Louisville Journal of Surgery and Medicine*, May, 1899) notes that while six or seven years ago subconjunctival injections were recommended in almost every disease of the globe or its contents by many of the world's foremost ophthalmologists, there followed a reaction which condemned the method even for the conditions in which it is most useful. These injections have, however, at present found their true position in ophthalmic therapeutics, and stand as of undoubted value in chronic and relapsing infiltrative disease of the cornea, iris, and ciliary body. Subconjunctivally injected fluids, such as weak sublimate or salt solutions, produce increased lymphatic circulation in the eye, thus causing absorption of pathological products. The latest experiments in this line by Mellinger were to inject an emulsion of India ink into the anterior chambers of a rabbit, and then to inject subconjunctivally salt solution of variable strengths up to a ten-per-cent solution. He states that after six injections, preferably of the stronger solutions, the India ink had been almost entirely absorbed; while in the eye left to itself there was practically no change. The explanation of this result has been given thus: Certain crystalline substances, among which chloride of sodium stands first, withdraw water from the tissues in proportion to their molecular composition, and to the strength of the solution. If the solution is introduced beneath the conjunctiva, it enters the lymph spaces of the eye and tends to extract an excess of fluid from that organ. Thus is induced a more active elimination of the elements of decomposition, necessarily bringing about a more active supply of new nutritive substances from the blood, which naturally results in a more rapid reformation of the changed tissues. This action of the solution is stronger in diseased than in normal tissues.

As to the practical results, Sneller recommends these injections in scleritis; Van Moll in sclerokeratitis and parenchymatous keratitis; and Deutschmann has reported two thousand separate injections, with the conclusion that he has seen better results in parenchymatous keratitis from this than from any other method. The author quotes some illustrative cases of his own.

THE OPEN METHOD OF ADMINISTERING NITROUS OXIDE.

In an editorial upon this topic (*New York Medical Journal*, May 13, 1899) the method of administering nitrous oxide described by Dr. Flux at a meeting of the Society of Anesthetists in London is favorably commented upon. Dr. Flux discards the closed mouthpiece and uses an inhaler closely fitting the patient's face, but wide open at the top, into which the gas is allowed to fall from any simple delivery apparatus. The gas naturally falls by its own weight and has no tendency to escape upward, while the accurate adaptation of the inhaler to the face prevents its leakage downward.

By this method of administration, which

Dr. Flux had employed three hundred and fifty times, he affirms that the patient experiences absolutely no discomfort, since he is subjected neither to breathing into an air-excluding face-piece nor to the high pressure at which the gas issues from the cylinder into the inhaler. It is inhaled comfortably at the ordinary atmospheric pressure. Free access of air to the patient is obtained, and the gas is admitted into the inspired air in place of the air being admitted to the inspired gas, as is the case in the ordinary closed method. The gas only needs to be allowed to flow during inspiration, and when once anesthesia has been induced, it can be kept up indefinitely by allowing the patient an occasional breath of gas. Moreover, as the anesthetist has the gas under complete control, he can raise and lower the degree of anesthesia as often and as quickly as desired.

Dr. Flux has had two forms of inhaler made out of clear, thin celluloid, which is light, transparent, pliable, non-absorbent, and easily cleansed. One form is in the shape of a cone open at both ends, for use on patients in the recumbent posture; the other is open at the top and on one side for a patient sitting down. A rubber tube capable of inflation round the face aperture insures accurate adaptation in either form.

From seven to eight gallons of gas is required to induce anesthesia in an adult, and from three to four gallons is required for each additional minute during which anesthesia is to be maintained.

Dr. Flux thus describes the effect of this method of administration upon the patient: "No excitement, stertor, lividity, or convulsive movement, or any sign of asphyxia, occurs throughout the administration and resulting anesthesia—in fact, the whole proceeding is characterized by extreme placidity. In no case has it been necessary to use force to restrain the patient either during or after the exhibition of the anesthetic. Even when administering with unsuitable or improvised inhalers, or under adverse or previously untried conditions, the results have been almost uniformly satisfactory."

In the discussion which ensued, Mr. Baldwain and Mr. Carter Braine, both of whom had seen Dr. Flux administer gas by this method, and the latter of whom had had it tried upon himself, bore testimony to the efficiency of the method. The latter gentleman stated that so insensible was the change when he saw Dr. Flux administer the gas to patients for operation at the Dental Hospital of London, that although he watched the patients very carefully, he was unable to tell when they were anesthetized. They appeared simply to drop off into a normal sleep. For himself, he had taken gas many times, but never so comfortably as in this instance. He breathed perfectly naturally, and did not seem to be taking gas.

A NEW METHOD OF REDUCTION IN SEPARATION OF THE LOWER EPIPHYSIS OF THE FEMUR.

HUTCHINSON and BARNARD (*The Lancet*, May 13, 1899), in December of last year, read a paper upon the above subject, the main contention of which was the value of full flexion of the knee in effecting reduction, and reported three added cases of this injury, with skiagraph pictures showing how completely reduction is effected by this position. Of the sixteen cases of which they have personal knowledge, not less than seven occurred through hanging on behind carts, and the leg becoming entangled in the wheel; in four the separated epiphysis was a part of the general smash due to a lift or railway accident; in three it was due to direct violence, such as the passage of a wheel over the knee; in one it was due to placing the leg up to the knee in the gap between the shafts and the cart and then falling forward; whilst in the last case the injury was inflicted while playing a game well known to schoolboys, in which one boy bends down, supporting himself against a wall, whilst the others leap upon his back and endeavor to break him down. The patient while supporting three boys upon his back was struck upon the knee by the fourth, when his knee gave way, bending backward. Forcible hyperextension of the knee is thus nearly always the cause, and hence if displacement occurs, it is as constantly a forward one of the epiphysis.

The difficulty experienced in trying to replace the epiphysis by direct pressure upon it whilst traction is made in the length of the limb is explained as follows: The stripped-up periosteum is attached to the anterior edge of the epiphysis. The posterior ligament, the lateral ligament, and the crucial ligament, with the two heads of the gastrocnemius, are attached to the posterior half of the epiphysis and behind its axis of rotation. After the epiphysis is torn off, if traction be made in the line of the limb, the epiphysis being attached by periosteum in front and pulled on by ligaments and muscles

behind will rotate on its axis so as to turn its articular surfaces directly forwards, and this is a position in which no amount of direct pressure will replace the epiphysis upon the end of the diaphysis. It is equally clear that if the direction of traction be gradually inclined backwards until the pull is at last at right angles to the axis of the shafts of the femur, the epiphysis will be drawn across the fractured surface of the diaphysis by the pull of the ligaments attached to its posterior half until the band of periosteum attached to its anterior edge checks this backward movement by coming in contact with the anterior surface of the femur.

A method of reduction was devised to make the epiphysis retrace its step backwards, to apply the separated periosteum to the anterior surface of the femur, to withdraw the end of the diaphysis from the popliteal space; and when these objects have been attained, so to fix the limb that the displacement could not recur. The method is as follows: Under complete anesthesia an assistant makes steady but strong traction upon the tibia in the line of the limb. This overcomes the upward pull of the quadriceps extensor and brings the epiphysis down to the line of the separation. The operator then clasps his hands beneath the lower part of the thigh and draws it steadily upwards, gradually flexing completely the knee and hip-joint, whilst the assistant still keeps up the traction on the leg. It will be seen that this maneuver causes the epiphysis to move back upon the fractured surface of the diaphysis until it has reached its normal position and further movement is prevented by the periosteum coming into tight contact with the anterior surface of the femur. A bandage is then applied around the thigh and ankle, fixing the knee at an angle of about 60 degrees. Complete flexion—*i.e.*, heel on buttock—was found in the last case to be unnecessary, and the wider angle is more comfortable. The limb is laid on its outer side on a pillow, and an ice-bag can conveniently rest upon the front of the knee to limit effusion. The advantages of maintaining this position for a fortnight are that the quadriceps exerts tension in the length of the bone, keeping the surfaces in close apposition and squeezing out effused blood, and that the tendon of the quadriceps and the patella fit into the groove between the two condyles and prevent lateral displacement; and since the tendon of this muscle changes its direction at a right angle to be inserted into the tubercle of the tibia, it prevents recurrence of the forward displacement of the epiphysis. The flexed position also removes the sharp end of the diaphysis as far as possible from the popliteal space and relaxes the skin, vessels, and nerves completely. The articular surfaces of the epiphysis are subcutaneous and uncovered, so that their position can at any moment be observed, and the dorsalis pedis and posterior tibial arteries are not concealed by any splint or apparatus. After fourteen days the limb can be extended, under gas if necessary, and put up in plaster in a position about 30 degrees short of the straight line. The patient can then get about on crutches.

In a previous paper the authors recommended that extension should be carried out slowly upon a MacIntyre splint and should occupy a fortnight, but as a rule they have found this caution unnecessary. The plaster remains on for from a fortnight to three weeks, and a little massage restores the movements of the joint.

The authors closed their paper with the following conclusions:

1. That separation of the lower epiphysis of the femur is a very serious injury and is attended when compound by a high mortality.

2. That in the extended position of the knee, even with an anesthetic, reduction of the fragment is very difficult if not impossible.

3. That when the epiphysis is not reduced, the patient is laid up for about three months and is lame for about six months, whilst the end of the diaphysis frequently requires removal by operation. Shortening of the limb and secondary curves in the spine always follow.

4. Nevertheless, the ultimate result in most cases that recover at all is good. The articular surface of the femur gradually grows into a useful position.

5. That with the method of full flexion reduction is always easy, the treatment is short, and it is the rule to obtain perfect movement in the knee without shortening or deformity of the leg.

DEATHS AFTER CELIOTOMY.

SMYLY (*Medical Press and Circular*, April 26, 1899), under this title, classes as the causes of death after celiotomy, shock, hemorrhage, ileus, uremia, inanition, tetanus, embolism, and sepsis.

Under shock the effect of exposure of the

intestines to air is considered, and the need of an absolute hemostasis pointed out. As a preventive treatment the author suggests that, in weak and debilitated patients with weak hearts and rapid pulse, operation should be if possible postponed or abandoned. He advocates the injection of sterilized salt solution, and the means customarily employed in hospital practice. Saline infusion is, however, to be used only when there has been marked loss of blood.

Ileus, if cases of paralysis due to peritonitis are excluded, is generally due to adhesion of intestine to raw surfaces. A stormy onset is exceptional. The obstruction is often incomplete, and the bowels may be evacuated at intervals, and yet the patient may be lost. Washing out of the stomach and deep enemata are suggested. When these measures fail the abdomen should be reopened without further loss of time. As to prophylactic measures Trendelenburg's position is one of the most important, since the bowels are out of the way and are not disturbed. Moreover, all raw surfaces should be covered with peritoneum. Coating raw surfaces with collodion has been recommended, and Martin, of Berlin, introduces a sponge soaked in sterilized oil, but most operators attach more importance to drawing down the omentum between the abdominal wound and the intestines, and as far as possible covering all raw surfaces with peritoneum.

Thrombosis is a potential embolism, and as it may be set free even at a late period, the patient should be cautioned against violent efforts or straining for some time after an abdominal operation.

Peritonitis, when this develops, should be treated by free purgation. This inflammation is often aseptic.

FOUR CASES OF INTUSSUSCEPTION.

MORISON (*Medical Press and Circular*, April 26, 1899) reports the case of a child (female) three months old, who for four hours had been suffering from intermittent attacks of crying, accompanied by diarrhea. The stools were mucoid and tinged with blood. The child had been constipated since birth. When first seen it was sleeping restlessly on its mother's knee, but was roused at intervals of ten or fifteen minutes apparently with griping pain in the bowels. Paroxysms were ushered in by a shriek. The legs were drawn up, and the child writhed about in agony. At the same time the bowels acted. The child also vomited frequently. No abdominal tumor could be felt. A large injection was tried, apparently without good result. Operation was refused. The patient was kept mildly under the influence of morphine for a week. On the fifth day a sausage-shaped mass could be felt along the course of the ascending colon. During the second week the symptoms remained the same, excepting that vomiting was less frequent. The child emaciated rapidly and progressively. Sixteen days from the date the child was first seen there was passed per rectum a twelve-inch mass of intestine. A year later the baby was perfectly strong and healthy.

The second case (female) was eleven months old, and when first seen had been vomiting constantly for ten days. The child sustained a fall, and the next day suddenly developed violent vomiting and screeching, passing in a short time per rectum a large quantity of blood. A sausage-shaped swelling was distinctly felt in the area of the descending colon, and per rectum a mass could be palpated, extending down to within an inch of the anus. The child died in a few hours. A post-mortem examination showed the peritoneal cavity to be flooded with intestinal contents. The lesion consisted of an intussusception of the ileum through the ileocæcal valve. This had been forced in through the ascending into the transverse and descending portion of the colon, sigmoid flexure, and rectum. At the splenic flexure the intussuscipiens had been perforated and the mucous membrane of the ascending colon projected through the opening. The invaginated small intestine reached to within an inch of the anal orifice.

The third case (male) was three years old. On the morning following a dose of castor oil the child was seized with severe abdominal pain, accompanied by diarrhea and sickness. In twenty-four hours the motions became mucoid and contained a considerable quantity of blood. In the line of the descending colon a sausage-shaped mass could be felt extending from the costal margin to the left iliac fossa. The anus was patulous, but on introducing the finger a body resembling a soft cervix and os uteri could be felt. Large enemata were given, under chloroform, both of water and air; these failed, though they were tried repeatedly. Operation was finally performed three days after the beginning of the symptoms. There were no adhesions, and the invagination was gradually reduced. The splenic flexure had become

invaginated into the descending colon. The patient died within twenty-four hours.

The fourth patient (male), five years old, after some imprudence in diet was taken with very severe pain in the bowels and vomiting. Two and a half hours later he was pale and pinched in appearance, with a rapid, weak pulse. Between the intervals of pain he lay exhausted, and as soon as pain came on he cried out and rolled about the bed. Each paroxysm of pain was followed by an evacuation of mucus and a little blood. The abdomen on examination was quite flaccid, nor was there tenderness except in the region of the right iliac fossa, where a small, elongated, very tender mass could be felt. Insufflation, massage, and large enemata of hot water were tried in vain. Operation was then performed. The intussusception was of the iliocælic variety. About a foot of the gut was readily released. The mesentery of the intussusception was then shortened by inserting a few fine silk sutures parallel with the gut, for the purpose of preventing a recurrence. The patient made an uninterrupted recovery.

THE CONDITIONS OF SUCCESSFUL OPERATION IN EPILEPSY.

KOCHER (quoted in *Medical Press and Circular*, April 26, 1899), in a paper on this subject, thought pessimism in regard to operation for epilepsy had been carried too far. From recent experience he had concluded that the method of operation practiced had not been the right one. V. Bergmann had introduced an improvement by removing the cortical portion from which the epilepsy started. About ten per cent were cured in this way. Since the eighties the speaker had operated after a theory of his own, and had obtained six complete cures in traumatic epilepsy. He had collected 175 cases of operation, only calling those cures that remained well at the end of three years, although epilepsy sometimes returned even later than that. In this investigation he was able to determine that that treatment was successful which attacked the cause of the epilepsy direct. After extraction of foreign bodies from the skull, and especially from the brain, eighty-eight per cent of recoveries took place. In the latter cases, where the dura was incised, the results were the best. He assumed that an essential cause of the occurrence of attacks was tension, which was relieved by incision of the dura. Perhaps this reduction of tension was the factor in these cases that had been cured after incision of the cortical center, and also in those cures in which the center could not be determined by electricity.

In the author's successful cases the covering over the opening had remained soft, so that "giving" could take place on pressure, whilst in the unsuccessful ones the covering had become bony or at least of tense connective tissue. If the principal factor of the attack was assumed to be a cicatrix or adhesions, operations should not be performed, as a cicatrix was always left by them. But these need not be feared. Aseptic soft cicatrices, even when they projected into the brain, almost never caused epilepsy. Guinea-pigs could be made epileptic by a simple blow on the head, and in these cases the blood-pressure was increased fourfold. If the animals were then operated on and a lateral ventricle opened, the epilepsy ceased. An etiological connection between increased pressure and epilepsy had thus been experimentally proved. In this way cysts and collections of fluid of all kinds within the brain easily gave rise to epilepsy.

According to these views, we have first of all in our operations to remove all local irritation, such as foreign bodies, and then take measures for reducing local and general blood-pressure within the calvarium. The dura when incised should not be sutured, but should rather be excised, and the defect should not be covered by bone. In penetrating wounds of the head the damage was not caused by the opening, but by the firm closure of the skull.

Bergmann said it was yet to be determined what was the nature of epilepsy, and then there was the proposition that there was no epilepsy without spasmodic changes in the brain. This condition was congenital, and it would not be too much to say that in nine-tenths of the cases of epilepsy, whether traumatic or not, there was a hereditary tendency. If we took from the remaining tenth all the cases in which infective diseases were the cause, the remainder would be very small. Hereditary disposition could not be assumed when the attacks began after the twentieth year. As to the cases operated on, it was very difficult to determine whether they had a hereditary predisposition or not. There were two categories of causes of epilepsy: first, the supposed epileptic change in the brain, which could be treated by operation, bromides, and section of the sympathetic; and secondly, where the disease was caused by localized peripheral injury, and here we

must satisfy the *indicatio causalis.* If excision of the cortex did not always succeed, it was because general epileptic changes had already been set up in the brain. For fulfilment of the *indicatio causalis* operation should not be too long delayed. A definite judgment as to results of operation could only be given after they had been performed.

ON THE USE OF ANTISTREPTOCOCCIC SERUM IN INFECTIONS BY THE STREPTOCOCCUS.

BRISTOW (*Medical News*, May 6, 1899), after a brief review of the theory of serum treatment, recalls the fact that in 1895 there appeared an article by Marmorek, in which he announced that he had succeeded in producing a serum effective against the organism of erysipelas. Subsequent articles by the same investigator appeared in other journals, in which he detailed the results of his work in erysipelas, scarlet fever, and other affections in which the streptococcus was the cause either of the disease itself, or, as in scarlet fever, of serious complications. Since then many observers all over the world have reported cases in which Marmorek's remedy against this, the most dreaded of the pyogenic organisms, has been successfully used. Other observers have reported negative results in similar cases, so that at present there is much confusion in the evidence submitted for adjudication. On the whole, however, it seems favorable and of sufficient weight to justify us in putting it to the test in suitable cases. It thus becomes the duty of those who have made use of this antitoxin to put on record their experience and conclusions with regard to its usefulness. Accordingly he submits the histories of fourteen patients classified as follows: Erysipelas, 3; streptococcic inflammations of the hand and forearm following so-called poisoned wounds, 7; streptococcic inflammation of the leg and foot, 1; suppuration of the knee-joint, 1; postoperative pneumonia, 1; acute gangrene of the foot with an ascending lymphangitis and phlebitis, 1.

The conclusions drawn from these fourteen cases, which are reported in full, are as follows: Cases of cutaneous, or so-called idiopathic, erysipelas may be quickly terminated by the early use of antistreptococcic serum, the initial dose being from ten to twenty cubic centimeters, according to the severity of the case, followed by additional doses if necessary. Rarely more than two or three injections will be required. With regard to the cases of phlegmonous inflammation, the use of the serum has seemed to prevent the extension of the infection beyond the parts first attacked, but has had little if any effect on the sepsis produced by the retained pus. In other words, the same necessity exists, whether the serum be used or not, to secure prompt drainage and the evacuation of the products of inflammation. This agrees with the experience of Marmorek himself, who in reporting ten cases of phlegmonous inflammation states that if the serum is used before the appearance of suppuration this does not occur. If foci exist, when evacuated rapid recovery ensues without extension of the inflammation. Postoperative pneumonia, unless of streptococcic origin, cannot be expected to improve under serum-therapy until we are provided with a mixed serum which shall be protective both against the streptococcus and the pneumococcus.

A complete summary of the literature on the subject shows that the serum has been used in 476 cases of erysipelas, 456 of which were reported by Marmorek himself, leaving 66 reports by other observers. Marmorek states that the average mortality of the disease in the erysipelas wards of the Paris hospitals is five per cent, whereas in a series of 306 cases, excluding three patients who died from causes unconnected with the erysipelas, the mortality when the serum was used fell to $\frac{97}{100}$ of one per cent; also that of the 306 cases, 141 were mild and 165 were serious. The serious cases furnished the two deaths, a rate of but 1.27 per cent, in 165 cases of grave erysipelas. All the patients whose cases have been reported by other observers, including the author's, recovered. Among these was a case occurring in an infant aged three weeks (Charrin and Rogers); another in an infant aged six weeks (Ganchex); one in a baby aged three weeks (Steele); and one in a child aged four weeks (Poliewkto). The average dose in the case of infants seems to have been about five cubic centimeters. Marmorek, in reporting a series of ninety-five cases, expressly says that the serum does not at all influence the course of the disease, which depends on the scarlatinal poison, whatever this may be, but only affects those complications due to streptococcus infection, such as the sore throat, the glandular swellings, nephritis, and otitis media. With regard to these complications, themselves often the cause of death, Marmorek makes the following statements: In nineteen cases

of scarlatinal bubo in which the serum was used, not one suppurated; albumin disappeared from the urine after one or two injections, and in four cases of suppuration from otitis media this promptly ceased after the use of the serum. The dose given ranged from ten to thirty cubic centimeters in ordinary cases, in grave cases from forty to ninety cubic centimeters.

Baginsky, in his series of forty-eight cases, makes a similar though more guarded report. Low reports the case of a child, said to be dying from scarlatina with acute hemorrhagic septicemia and otitis media, which improved at once under the administration of the serum, recovery taking place after the use of 263 cubic centimeters. On the other hand, Josias reports a series of ninety-five cases and states that the serum apparently was without effect, the mortality not being appreciably decreased. Other writers have had a somewhat similar experience. In the cases imperfectly reported by Fischer it does not appear that the serum was used for the streptococcus infection, but rather in a general way, and without avail. From the evidence at hand, weighing the reports of the different observers, it seems that benefit may be expected when the serum is used, as Marmorek directs, for the complications due to streptococcus. The scarlatinal fever itself, however, will not be influenced.

The puerperal cases merit more discussion than the limits of this paper will permit. The reports which the writer has collected include 201 cases, with a mortality of thirty-three per cent. This is not encouraging, and the opinions are conflicting. In the larger series of cases, such as that of Bar and Tissier, the mortality is much increased by including cases of patients already *in extremis* when the remedy was used. The same is true of the Philadelphia cases reported by Baldy, Hirst, Noble, and others, in which the serum was not used until the tenth or twelfth day of the disease. The dosage seems to have been small, considering the formidable nature of the infection and the extent of the tissues involved.

The protective power of this serum is low at present and varies considerably, some specimens being fourteen times the potency of others, according to Marmorek's own statement. It seems idle, therefore, to expect results from so timid a use of a relatively feeble serum. If good is to be expected from the use of the serum in this class of cases, it must be used in far larger doses than hitherto. Quantities of less than sixty cubic centimeters a day will not as a rule avail much, and much greater daily quantities may be necessary. Moreover, it must be used early in the disease, before multiple abscesses have formed in the uterine walls and septic thrombi have collected in the vessels of the pelvic structures.

What is the proper dose of the serum? This is a practical question, and at present it can only be answered by saying that too much rather than too little must be given because the serum has not as yet been standardized. An average dose is ten cubic centimeters. Twenty cubic centimeters will often be required, and daily quantities of sixty to one hundred cubic centimeters may be needed. It is possible that the varying experiences of different observers have been due to the use of serum of different degrees of strength. It is not possible to give a definite dosage until the manufacturers succeed in standardizing their products.

Aside from the occasional appearance of erythemata and urticaria, the writer does not believe that any serious risks are to be apprehended. In a series of reports of more than 1000 cases collected by the writer, the only instances in which the serum was charged with ill effects were in four or five puerperal cases.

The serum has been used in cases of so-called malignant endocarditis with success, and in the bronchopneumonia of children (forty-five cases, Marmorek) without a single death. This affection, Marmorek states, is almost always of streptococcic origin. Considering the usual mortality of the disease in children this record is noteworthy.

CLINICAL NOTES UPON THE CONTOUR AND CONSISTENCE OF A THOUSAND PROSTATE GLANDS.

FENWICK (*British Medical Journal*, p. 395, 1899; quoted in *Journal of Cutaneous and Genito-Urinary Diseases*, May, 1899), in examining the prostate, as a routine position prefers to have the patient bent at a right angle over a table or with his hands resting on a chair, with the bladder empty. Where the patient lies on his back, the prostate will be found higher up in the pelvis, and therefore not so accessible to the examining finger.

In urinary tuberculosis, in a large percentage of the cases, the examination of the epididymis and the prostate lends some aid to the diagnosis of the case. In 157 male

patients a deposit was found in the epididymis in twenty-one per cent of the cases, in twenty-four per cent in the epididymis and prostate, in three per cent in the prostate and seminal vesicle, in the prostate alone three per cent, in the prostate and bladder (the latter by the cystoscope) six per cent; so that in fifty-eight per cent of all the cases a deposit could be detected by the finger on the first visit.

The text-books are indefinite and inaccurate as to the forms which the prostate assumes in tubercle. The "shotty" prostates described by some are found in only three per cent, and are of grave import. Massive indurations of prostate and seminal vesicles described by others are found in five per cent of the cases, and generally denote septic inflammation in addition to tubercle. The vesicles may become affected before the prostate in fourteen per cent, but this is not common in the early stages.

In watching a case from year to year it will be found that the deposit passes through a variety of stages, and according to the stage, so is the character and contour of the deposit in the prostate, vesiculæ, and epididymis.

Tuberculous deposit is met with in the prostate under three clinical conditions: in young males who have noticed merely a lump in one epididymis; in young males who have symptoms similar to those produced by stone in the bladder; or in the adult male who complains of symptoms like those of stone in the kidney. In the first class the patient may present a small, painless lump in one epididymis, and in the prostate on the corresponding side a small, insensitive lump may be found near the sulcus, partly buried in the upper third of the lobe.

In the second class the patient may complain of pain at the end of the penis after urination, with undue frequency and occasional hematuria; the urine is lightish and murky from pus. By the rectum a hard knot may be found, buried in one of the lobes of the prostate, and the cystoscope will show that the bladder base is affected. The corresponding epididymis will also in time become the seat of a similar indolent nodule. Such prostatic deposits may remain indolent, or calcify, or become absorbed.

The indolent epididymal nodule may become inflamed, impetus being derived from a gonorrheal attack or trauma. The knot in the corresponding lobe of the prostate may also present a condition similar to that in the epididymis, and may project sharply into the rectum. Further, the rectal mucous membrane over it may become adherent, and then puckered, and it may soften in one spot. The inflammation may extend to the corresponding vesicle. The author is inclined to believe that inflammatory exudation tends to retard the progress of the tubercular disease.

These indolent deposits rarely suppurate of their own initiative. By the absorption of the deposits the prostatic contour and consistence are greatly altered, the lobes become flattened, the consistence leathery, and the outlines confused. A second important point is, that where tuberculous infiltration of the prostate has once occurred, even though healing takes place, the process extends by definite routes. This route generally begins in one epididymis (twenty-one per cent), then extends to the prostate, corresponding side, into the base, and around the corresponding ureteral orifice in the bladder, and then into the corresponding kidney. The route may short-circuit from epididymis to kidney. The process usually keeps to the side on which it started, though a cross-route may be taken from epididymis and prostate of one side to the opposite kidney. The route may be in the reverse direction, from kidney to bladder, to prostate and epididymis of corresponding side, or by cross-route to opposite side, or by short-circuit from kidney to epididymis.

The author strongly condemns bladder irrigation in tuberculous cases, even where there is pus in the urine, and even though there be temporary relief. The patient, in the end, pays too dearly for the temporary improvement.

GANGRENE FOLLOWING THE LOCAL APPLICATION OF CARBOLIC SOLUTIONS.

LEIPZIGER (*Virginia Medical Semi-Monthly*, April 14, 1899), after reporting a number of cases of gangrene following the use of carbolic acid, states that the consensus of opinion with reference to the use of carbolic acid solutions seems to be:

1. Long-continued use of even the weakest solutions is dangerous. (In his case the length of time was only 12 hours.)

2. Encircling the part with the dressing is given as a predisposing factor. (In his first case the finger which was not encircled also became gangrenous on the top where the dressing was applied.)

3. Idiosyncrasy is possible and quite probable.

4. The general sale of the drug should certainly be restricted.

He adds the suggestion:

5. That the use of carbolic acid solution as a dressing to injuries of the extremities be discontinued in view of the efficacy and equal cheapness of many less dangerous antiseptics.

SURGICAL TREATMENT FOR CEREBRO-SPINAL MENINGITIS.

In an editorial article (*Medical Record*, May 6, 1899) the following comment was made upon the surgical treatment of cerebrospinal meningitis, suggested no doubt by Rolleston and Allingham's successful operation.

"What has been done successfully for other intracerebral and intraspinal conditions—such as hemorrhage, effusion, cysts, tumor, etc.—it is now proposed to do in suitable cases of cerebrospinal meningitis, of which Rolleston and Allingham (*Lancet*, April 1, 1899, p. 889) report a case treated by laminectomy, incision of the dura mater in the dorsal region, and drainage, with recovery. The patient was a man twenty-four years old, who was seized with pains that became diffuse, who experienced a dull, singing sensation in his ears, with deafness, and who presented mental wandering, with an inability to reply pertinently to questions. The knee-jerks were normal; vomiting occurred, and delirium was present at night. The patient lay on his right side, with the thighs and knees flexed. The head was retracted, the muscles of the neck were rigid. There were, further, headache, tache cérébrale, occasional convergent strabismus, variation and inequality of the pupils, and horizontal nystagmus. The patient grew worse, the temperature rose, the skin became red and swollen, and coma and delirium alternated.

"As it appeared that the man would die if left alone, other treatment having failed, surgical intervention was undertaken, an incision six inches long being made over the spines of the lower dorsal vertebræ, of which the laminæ of the seventh and eighth were excised. The exposed dura bulged and was incised for about an inch in the long axis of the cord, with the escape of coagulated lymph and cerebrospinal fluid, to the amount of about three ounces. A drainage-tube was inserted, and no attempt was made to unite the incised margin of the dura mater. The skin was loosely approximated by nine sutures, and the usual antiseptic dressings were applied. Decided improvement at once ensued. There was a free discharge of clear fluid from the wound, necessitating a change of dressing twice daily. For three and a half weeks the discharge continued, being impeded from time to time as the wound healed, when the temperature would rise and the symptoms be aggravated. By the thirty-fourth day the temperature remained normal, the discharge diminishing and finally disappearing. The tube was removed on the fortieth day, and the wound was completely healed eleven days later."

THE RADICAL TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA.

REIK (*Maryland Medical Journal*, May 6, 1899) strongly advises in cases of purulent discharge from the ear that has existed for a considerable length of time the institution of a surgical treatment, if a month devoted to simple cleansing and antiseptic applications is not productive of good results.

Two methods of operating are receiving to-day a great deal of attention. The first is ossiculectomy. By removal of the malleus or incus, or what remains of them, we improve the opportunities for drainage, and in a certain number of cases may secure good results. This method is not applicable to all cases, of course, and only cures about fifty per cent of the cases in which it may be resorted to. It does not very much improve the chances of cleansing the antrum, and that is the most important point involved. It fails, then, in that it is not sufficiently radical.

About ten years ago two German surgeons, Professors Stacke and Zaufel, each acting independently of the other, suggested a much more complete and more satisfactory method of treatment, though at the same time a more severe measure. This consists in the removal of all diseased tissues and the converting of the antrum, the tympanum, and external auditory canal into one large cavity, which is to be lined by skin. Both methods accomplish the same ultimate results, and differ only in technique. Preparations for both are made in the same way. The area above and behind the auricle is shaven and thoroughly cleansed, every precaution being taken to make the operation as nearly aseptic as possible. The operation begins in the usual manner by performing a Schwartze mastoid operation; an incision, beginning at the upper border of the auricle and running down to the tip of the mastoid process, is

made through the skin, the periosteum is elevated so as to lay the whole mastoid process bare, and the auricle is pulled forward by an assistant so that the cartilaginous portion of the posterior part of the wall of the external auditory canal can be separated from the bone through its entire length. In the Schwartze-Stacke method, the removal of the bone begins at the junction of the external auditory canal and the tympanum, and the operator works out toward the antrum; but the majority of operators seem to prefer the Schwartze-Zaufel method, which begins with the usual opening into the antrum, is continued by the removal of all diseased bone in the mastoid process, and is followed by the removal of the bridge of bone between the antrum and middle ear, which forms the posterior wall of the external canal. By each method the ossicles, or such fragments of them as remain, and the tympanic membrane are removed. The next problem consists in securing a skin lining for this large cavity, and various measures have been suggested. Skin flaps may be taken from behind the auricle or from the external auditory canal, or Thiersch grafts may be used. The perforation behind the ear may or may not be closed. These are minor details, however, and can only be decided for the case in hand.

A FEW REMARKS ON THE DIAGNOSIS AND TREATMENT OF RUPTURE OF THE BLADDER.

THORNDIKE (*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1899) says that so much success has attended the suturing of bladder wounds that many operators do not hesitate to open the bladder into the peritoneal cavity in the endeavor to obtain plenty of room for suprapubic operations; and Dr. F. B. Harrington, of Boston, in an article in the *Annals of Surgery* for 1893, page 408, "On the Feasibility of Intraperitoneal Cystotomy, with Report of a Case," advocates this procedure in suprapubic operations. His method of operating is to make a long incision into the abdomen, pack off the intestines very carefully with gauze, and then having isolated the bladder, to open it freely so as to get a good view of its interior. He claims great ease of inspection as well as facility in the removal of the offending tumor, stone, or prostate. So that, in spite of the fact that a comparatively few cases of intraperitoneal rupture of the bladder have recurred after suturing of the rent, yet the experience of the last fifteen years (since Mr. Walter Rivington, surgeon to the London Hospital, laid down the rule that intraperitoneal rupture means immediate laparotomy) is such that we have come to consider this procedure as a firmly established principle of surgery. The ease with which accidental and other bladder wounds are repaired has greatly aided the establishment of such a belief.

Immediate operation, then, is the one thing which offers us hope, and is the one thing to be accomplished in as many cases as possible. Any aid to an immediate diagnosis or any formulation of operative indications which will justify immediate operation in doubtful cases is to be desired.

Now, if it invariably happened that the earliest symptoms of bladder rupture were positive enough and clear enough to show that the rent was present, and whether it was intra- or extraperitoneal, it would be clearly our duty to operate in every case. Unfortunately this is not the case, and it is by no means an uncommon occurrence that the delay believed to be necessary to make a more exact diagnosis is the deciding influence between the life and death of the patient. There can be *no* delay once a rupture of the bladder is diagnosed or even suspected. The time to operate is then and there, and the only excuse for not doing so is that the patient's condition is such that operation will surely prove fatal.

The diagnosis of intraperitoneal rupture is often easy, but can seldom be made positively and immediately without the assistance of the bladder-injection test. We may or may not have in any one case the history of injury, the initial shock, pain, frequent passage of bloody urine in small quantities, urgent and well-nigh constant desire to urinate, the empty bladder with free fluid in the peritoneal cavity, etc., etc. The point is this: there is no time for careful study and extended observation. The decision as to operation is to be made then and there, and the cases are few where such immediate operation can be fully justified without the aid of the information furnished by the injection of a measured amount of fluid into the bladder through a soft-rubber catheter, and the measuring of the amount which flows out again.

Dr. Charles K. Briddon, of New York, in a paper on "Intraperitoneal Rupture of the Bladder," published in the *Annals of Surgery*

for December, 1895, speaks of this aid to diagnosis as follows: "I regard the institution of this measure as of very doubtful utility and not free from the danger of spreading the infection over a larger area than that already involved by the existing extravasation, and it also incurs the danger of breaking up such adhesions as do occasionally limit the effusion." This criticism is perhaps a just one, but at the same time it implies that the injury is no longer a recent one at the time the test is made. It is the writer's belief that most cases of bladder injury fall into medical hands almost at once, and that, in spite of the fact that in some of the cases the serious character of the injury is masked by alcohol, or by other serious and coincident injuries, there is usually something to lead one to suspect the existence of this accident. Even the slightest suspicion should be followed by the injection test, and the question of operation settled then and there in the great majority of cases. The cases when such immediate decision can be made without the aid of this test cannot be common. The imperative necessity of such immediate decisions does not seem to require further demonstration.

It is not the purpose of the author to enumerate or to discuss individual symptoms, but let us suppose that with or without the aid of the injection test which the writer considers so essential, the diagnosis of rupture is made. More evidence still is needed if it can be obtained—*i.e.*, the knowledge of whether the rupture is extra- or intraperitoneal. The injection test may furnish this knowledge by increasing the prevesical tumor and dulness without increasing the amount of or showing the presence of free fluid in the peritoneal cavity, thus establishing the diagnosis of extraperitoneal rupture. The catheter may pass through an empty bladder and then on into another cavity containing bloody urine, thus establishing a diagnosis of extraperitoneal rupture. Occasionally, then, this immediate and accurate diagnosis can be made; more often it can be strongly suspected. Frequently it is impossible to know one way or the other, and only too often must we undertake the treatment of our case with a very imperfect knowledge of the character and location of our injury. How are we to proceed? If the rupture is known to be extraperitoneal we may drain through the perineum. That will serve for a time, perhaps, as a very inefficient drainage which may prevent any further accumulations of extravasated fluid, but will certainly prove inadequate in most cases, for the one object of the operation is the drainage of the urine already extravasated and the drainage of the bladder to prevent further extravasation. Or we may make a prevesical incision over the pubes and drain in that way. If we do we are opening up a dirty cavity full of putrefying urine just previous to opening the peritoneal cavity to search for further trouble there, and we are also contenting ourselves with draining in a very imperfect manner an extravasation of urine, of the extent of which we know little. The cases to which such prevesical drainage is applicable are those extraperitoneal ruptures where the rent is anterior and where the extravasation is also sharply limited to the space of Retzius. Unfortunately we cannot often have such accurate diagnosis at our disposal to aid in the selection of the operative procedure needed. We may make an incision into the bladder (suprapubic) and search with the finger for the seat of the injury, but this must be very uncertain and unsatisfactory in many cases, and even if the tear or tears are found, we still shall not have the information we want as to the extent and direction of the extravasation.

So that, given the doubtful cases of extraperitoneal rupture with extravasation of unknown quantity and direction, none of the above methods is adequate.

Now a word as to these extravasations: they may extend up on the anterior wall of the abdomen, down around the neck of the bladder, or down one or both sides of the pelvis, under the peritoneum. They may go in one or all of these directions, and it is more often than not impossible to tell early in the history of the case without resort to operative exploration. If this exploration is made over the pubes and an extravasation found there, it by no means follows that there is not a deep extravasation as well which suprapublic drainage alone will fail to care for. The author believes that this was the condition in one of his cases, and that a laparotomy would have developed the extent of the extravasation and made the most complete and thorough drainage possible.

Lastly comes the question of where to make the incision, and how to place the tubes for the best drainage of effusions in different parts of the pelvis. If the effusion is in front of the neck of the bladder, and the opening has been made into it by the suprapubic incision without opening the peritoneum,

the bottom of the effusion should be sought with the finger, and a drainage-tube carried down to it.

In opening the bladder for drainage in such a case it may be worth while, if there is evidence that the effusion is making its way backward, to make the lateral perineal cystotomy rather than the median, because in the lateral position the parts about the neck of the bladder are more freely opened, and if the urine finds its way in that direction, it is afforded a sufficient outlet. By the median operation, unless the incision is carried back into the prostate, there is danger that the parts behind the triangular ligament will not be thoroughly laid open, and that any urine which found its way in that direction might not freely escape.

When, as so often happens, the effusion finds its way along the loose tissue on the side of the pelvis, and, as in one case, up along the iliac vessels toward the renal region, perhaps no better incision can be chosen than that which is used for tying the common iliac vessels. In order to give the most direct drainage, and at the same time not to have any more pressure from the tube upon the iliac vessels than can be helped, the incision had better be made rather more toward the median line of the abdomen than is usually done for tying the iliac artery. In this way the tube goes down more directly, and does not make so sharp a bend where it dips into the pelvis over the vessels. If, however, the effusion has already reached up behind the peritoneum, above the brim of the pelvis, the incision must be made further out near the anterior superior spine of the ilium in order to give the best drainage. The finger introduced from this region can penetrate quite readily over the brim of the pelvis, and well down behind the bladder, while the peritoneum separates so easily that a considerable channel can be made, through which the sloughing connective tissue can afterwards discharge itself. Ordinarily, these anterior openings afford tolerably satisfactory drainage for pelvic abscesses, as the intra-abdominal pressure is sufficient to force out the pus even through an unfavorably placed opening.

In any case in which a suppurating cavity has formed in the bottom of the pelvis, which does not drain satisfactorily through an anterior opening, it is perfectly possible to reach it, and give it good drainage, by adopting the incision usually employed for excision of the rectum, and removing the coccyx and one side of the lower segment of the sacrum. Such a wound as this, which bears the name of Kraske, who uses it for the excision of the rectum, gives thorough access to the lower part of the pelvis, and would give excellent dependent drainage in case of an abscess which was burrowing in that region, and which did not sufficiently discharge itself through the more anterior openings.

In conclusion, then, it would seem that there are very few cases of rupture of the bladder, either extra- or intraperitoneal, where a laparotomy is not indicated. It is perhaps proper to formulate these remarks somewhat as follows:

Immediate operation should be performed in all cases where a rupture is known to exist.

In all intraperitoneal cases immediate laparotomy should be performed and the wound in the bladder sewed up.

In all cases where there is any doubt as to whether the rupture is extra- or intraperitoneal, immediate laparotomy should be performed.

In all extraperitoneal cases where there is any doubt as to the direction and extent of the extravasation, laparotomy should be performed at once for exploration and diagnosis, and should be followed by the operation appropriate for the drainage of the case.

There remain only the cases where the rupture is known to be extraperitoneal, and where the extravasation is known to be limited to the prevesical space, as the ones where it is safe to drain above or below, or both, without an investigation of the bladder and its neighborhood through an abdominal incision.

THE USE OF EGG MEMBRANE IN OPHTHALMIC SURGERY.

COOVER (*Ophthalmic Record*, May, 1899), stimulated thereto by reports in which egg membrane was successfully used in brain surgery and to close perforations in the tympanic membrane, employed this material in a case of symblepharon, in one of burn, in one of corneal ulcer, and after iridectomy where infection was feared.

In the case of symblepharon, due to powder burn, the upper eyelid was completely adherent to the eyeball from the caruncle to cornea, extending upward and to the median line. So firmly was the lid attached to the globe that the outward excursion was greatly impaired. After removal of all the cicatricial

tissue, two raw surfaces were left, too large to be covered by conjunctiva.

A large piece of egg membrane was cut to cover the denuded surface on the eyeball, overlapping so the edge could be tucked into a pocket made in the conjunctiva below and above to hold the membrane. This was placed in position, the lids were closed, and a compress bandage was applied. At the end of ten days the membrane was removed; the surface on the ball and lid was smooth, and there were no adhesions. The result was perfect.

In the next case, one of burn, when the granulating stage had been reached the egg membrane was placed between the raw surfaces; it was removed several times, cleansed, and replaced. At the end of ten days the surface was perfectly smooth, and there were no adhesions.

In the other case, one of sloughing ulcer of the cornea, perforation was imminent; this actually occurred while the ulcer was being curetted. Egg membrane sufficiently large to cover the anterior portion of the eye was applied. Atropine was instilled, the lids were closed, and both eyes were firmly bandaged. The third day the eye was opened and examined. The anterior chamber had reformed, the iris was free, the pupil dilated, and the ulcer was healing. The egg membrane was removed, cleansed, and replaced. At the end of the second week the ulcer was sufficiently healed to remove the membrane.

The fourth case was one of iridectomy. A piece of egg membrane was placed over the incision. The wound healed promptly.

The advantages of the egg membrane are that it is easily obtained, easily applied, and produces no pain or irritation; it is aseptic, is not acted on by secretions, and can be removed, cleansed, and replaced; it is firm and elastic, and adapts itself to the parts wherever applied.

Reviews.

A SYSTEM OF MEDICINE. By Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A. Volume VI.
New York and London: The Macmillan Company, 1899.

We have already reviewed the earlier volumes of this exceptionally valuable work, and turn with much interest to the perusal of Volume VI, which deals with the continuation of the subject of Diseases of the Circulatory System, and then follows with articles upon Diseases of the Muscles, of the Nervous System and its Coverings.

The volume opens with an article upon Right-sided Valvular Diseases by Dr. G. Newton Pitt, and one upon Angina Pectoris by Sir R. Douglas Powell. It is needless for us to state that both of these articles are exceedingly valuable from a clinical point of view, particularly that of Sir Douglas, for the writer's experience in a country where true angina is more prevalent than in the United States has given him exceptional opportunities for its study.

Dr. Roberts follows with a very good article upon Diseases of the Mediastinum and Thymus Gland, and then follow classical articles upon Thrombosis and Embolism by Professor Welch, of Johns Hopkins Hospital, and others upon Arterial Degenerations by Dr. Mott, Aneurism of the Aorta by Professor Sir W. T. Gairdner, and others upon Aneurisms of the Abdominal Arteries and Lymphatic Vessels by Dr. Rolleston.

One of the most interesting articles in the series of Diseases of the Muscles is that by Dr. Hale White upon Thomsen's Disease. Dr. Bevan Lewis writes interestingly of the General Pathology of the Nervous System, and Dr. Head, who is so well known for his researches upon the distribution of the superficial nerves, writes upon Trigeminal Neuralgia.

The article upon Diseases of the Vertebral Column, Tumors, and Compression Palsies is by Professor Horsley.

It is well pointed out in the articles upon Mediastinal Growths that while statistics indicate that carcinoma is the most frequent growth, in all probability sarcoma is the more common in this neighborhood owing to the lack of epithelium and large amount of lymphatic tissue. The incorrectness of statistics probably depends upon the fact that many years ago no clinical distinction was made between carcinoma and sarcoma.

From the first to the last page this volume teems with valuable clinical information, and the series is of distinct credit to English medicine and to its distinguished editor, Professor Allbutt.

THE DISEASES OF THE NERVOUS SYSTEM. A Textbook for Physicians and Students. By Dr. Ludwig Hirt. Translated by August Hoch, M.D., Assisted by Frank R. Smith, A.M., M.D. With an Introduction by William Osler, M.D. Illustrated.
New York: D. Appleton & Co., 1899.

Dr. Hirt's excellent book upon Nervous Diseases is well known to readers of medical

German, and since its translation into English by American clinicans has proved itself a popular handbook in this country.

Although the title-page of the present American edition gives no intimation that it is the presentation of a later German edition than the first American edition published some years ago, an examination of its pages shows, nevertheless, that it has been subjected to revision and that the book has been brought up to the more advanced stages of present neurological knowledge. In many ways it has seemed to us that Dr. Hirt's book is one of the best upon this subject which the general practitioner can obtain, for it affords him not only the information which Professor Hirt has obtained by large clinical experience, but also refers so frequently to contemporaneous neurological literature that it thoroughly mirrors present medical knowledge, and while the views in some cases differ from those commonly held by American neurologists, it is certainly an authoritative work.

In the chapter upon epilepsy we learn with interest several facts with which we confess we were not familiar before. He tells us that certain substances taken as food or for their agreeable effects, or as medicines, are very dangerous to epileptics; among these are alcohol, mushrooms, certain spices such as Cayenne pepper and paprika, and also narcotics, particularly cocaine. "Cocaine epilepsy" has been described by Heimann, and under certain circumstances other medicines such as antipyrin may act as poisons and provoke an epileptic attack.

Hirt believes that this reference to "antipyrin epilepsy" (so-called) is a very important one because of the common employment of the drug in this and other diseases.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital. Volume II. $10.00 a year.

Philadelphia and New York: Lea Brothers & Co., 1899.

This, the second, volume of Progressive Medicine, the first volume of which we reviewed two months ago, carries out the idea which gave it origin, namely, to give personal and readable accounts of the progress made in the various departments of medicine. The present volume contains articles upon Surgery of the Abdomen, including Hernia, by Dr. William B. Coley; Gynecology, by Dr. John G. Clark; Diseases of the Blood, Diathetic and Metabolic Disorders, Diseases of the Spleen, Thyroid Gland, and Lymphatic System, by Dr. Alfred Stengel; and Ophthalmology, by Dr. Edward Jackson. The names of these authors are a guarantee of the good quality of their work. The articles of Dr. Coley and Dr. Clark are particularly interesting to surgeons and are exceedingly handsomely illustrated.

ON MATERNAL SYPHILIS, INCLUDING THE PRESENCE AND RECOGNITION OF SYPHILITIC PELVIC DISEASE IN WOMEN. By John A. Shaw-Mackenzie, M.D. (Lond.)

London: J. & A. Churchill, 1898.

The fundamental conception on which this work has been built seems to be a belief that syphilis, as a common cause of pelvic diseases in women, is usually ignored; and that the maternal origin of syphilis in the offspring, in consequence of maternal, acquired, or inherited disease, is not sufficiently recognized. In his preface the author states that the prevalence of pelvic disease, modified syphilis, and relative tertiary conditions amongst parous women in gynecological practice, as well as in other departments of medicine and surgery, leads to the impression that the estimate of immunization, as usually accepted in the mothers of syphilitic offspring, is overstated; and that complete immunity as an argument in favor of the paternal origin of syphilis in the offspring is probably fallacious.

Whether the reader does or does not agree with the views expressed by Shaw-Mackenzie in this work, he must concede that such views are forcibly expressed and amply supported by clinical observation. The book is worthy of careful study, and it is especially valuable in that it tends to counteract a certain mental inertia which leads the profession to accept without thought or questioning the text-book teaching of the day.

The therapy advised does not differ essentially from that in common use.

ON FRACTURES AND DISLOCATIONS. By Professor Dr. H. Helferich, of Griefswald. Illustrated with 68 Plates and 126 Figures in the Text, drawn by B. Kelitz. Translated from the Third Edition by J. Hutchinson, Jr., F.R.C.S.

New York: William Wood & Company, 1899.

This admirable work, well worthy of translation, cannot be too warmly commended. It is copiously illustrated by ordinary cuts, colored plates, and excellent radiographs. In itself it is almost a practical treatise upon the subject; and yet the script which it con-

tains would, if condensed, occupy probably not more than 200 pages.

The remarks upon the prognosis of fractures are peculiarly apt. The author states that a patient with a fracture may be said to be cured only when he is again able to work. Out of 121 cases of fracture of the shaft of the femur, thirty-four per cent were completely cured in this sense, while sixty-six per cent remained permanently damaged. The average duration of time before a cure was obtained was 13½ months.

Plaster-of-Paris bandages applied around a limb recently fractured are regarded as dangerous. When splints are employed, these may be of bent metal, and the molded plaster-of-Paris ones are strongly recommended.

This work is simply invaluable.

A MANUAL OF SURGICAL TREATMENT. By W. Watson Cheyne, M.B., F.R.C.S., F.R.S., and F. F. Burghard. M.D., M.S. (Lond.), F.R.C.S. In Six Volumes. Volume I.

Philadelphia and New York: Lea Brothers & Co., 1899.

This work, most appropriately dedicated to Lord Lister, LL.D., P.R.S., judging from its first volume, is designed as a text-book which shall thoroughly cover the very large subject of Surgical Therapeutics. There is no attempt made to give a summary of the various methods of treatment, but rather the authors endeavor to state exactly and in detail what they themselves would do under given circumstances. Exceptional diseases are not mentioned, space and time being devoted to the conditions with which the surgeon is most commonly called upon to deal.

The first volume is devoted to the therapeutics of inflammation. There is a chapter upon anesthetics; five upon wounds; one upon cicatrices; one upon syphilis; one upon chancroid; one upon tuberculosis; and one upon tumors.

As would naturally be expected, the sections upon inflammation are most thorough. The chapter upon anesthetics, by Silk, is also an admirable one, though the confidence he places in chloroform and the freedom with which he uses it will not be acceptable to the majority of American surgeons. In the section which deals with disinfection of the skin, and particularly that of the hands, it is to be noted that Cheyne and his colleague still trust in the antiseptic powers of carbolic acid. They first scrub with turpentine, then with soap and 1-to-20 carbolic acid solution; or better, a 1-to-20 solution of carbolic acid in water, containing 1 part in 500 of corrosive sublimate. The part is then covered with gauze soaked in 1-to-20 carbolic acid solution.

Carbolic acid is an unreliable disinfectant and is extremely irritating to the skin. Other and more modern methods are preferred by the great majority of surgeons.

It is also to be regretted that a better method of purifying instruments is not given than that afforded by thoroughly washing and cleansing them by means of a nail-brush immersed in a 1-to-20 carbolic acid solution; also the method of sterilizing instruments by immersing them in a 1-to-20 carbolic acid solution for half an hour or longer before beginning the operation may be regarded as thoroughly antiquated. One of the minor disadvantages of this method is that it ruins the instruments.

Douching of the wound with a 1-to-3000 sublimate solution is advised. This is certainly in opposition to the practice of the day.

Finally, Lister's gauze, impregnated with a double cyanide of mercury and zinc, is recommended as the most universally applicable and most satisfactory dressing that has yet been introduced. It has not proven itself so to the majority of surgeons.

A confidence in methods advocated and practiced by Lord Lister, and observed and proven at every step by Cheyne, can scarcely be misplaced; yet though cyanide gauze and carbolic acid solution may be, in the hands of the writers of this book, entirely efficient, their general adoption by the profession would be a retrograde step.

This volume is practical and comprehensive. It should prove of great service to both surgeons and practitioners of medicine. The publishers' work is thoroughly commendable.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

The two medical events of the immediate future are the sixth International Otological Congress, to be held in London in the second week of August, and the meeting of the British Medical Association at Portsmouth at the end of July. For the former meeting a valuable list of communications from aurists of every nation has been announced, and in addition a general discussion on "Indications

for Opening the Mastoid in Chronic Suppurative Otitis Media" will be opened by Professor Knapp (New York), Dr. Luc (Paris), Prof. William McEwen (Glasgow), and Professor Politzer (Vienna). A special feature of the Congress will be the museum of specimens, illustrating the anatomy and pathology of the ear, nose, and nasopharynx, and of instruments, which has been organized with indefatigable energy by Mr. Arthur Cheadle, of London. At the British medical meeting, out of deference to the naval and military associations of Portsmouth, many of the general discussions will be devoted to subjects dear to naval and military practitioners, such as "The Diagnosis and Treatment of Gunshot Wounds of the Abdomen," "The Prevention and Treatment of Syphilis in the Navy and Army," and "The Medical Tests Required at Present for Admission to the Public Service." On paper the most interesting section would seem to be that devoted to diseases of children under the presidency of Mr. Edmund Owen; this section will discuss the "Treatment of Ununited Fracture in Children," "The Treatment of Pleuritic Effusions in Childhood," "The Causation and Treatment of Convulsions in Infancy," and "The Treatment of Inguinal Hernia in Infancy and Childhood."

Valsols and vasogens are being much exploited now as a base for ointments in place of paraffin. They are said to be oxygenated hydrocarbons, which have a high faculty of dissolving drugs and promoting their absorption through the skin. In combination with some drugs, such as iodoform and menthol, these bases are able to form emulsions with water. They are well spoken of in dermatological practice, but it is questionable whether they possess these properties in the high degree claimed for them.

Mr. Skinner, pharmacist to the Great Northern Hospital, recommends the following formula for allaying the itching, burning sensation of urticaria:

℞ Liquoris hamamelidis, ℥ ij;
Salis maris, ℥ ss;
Aquæ destillat., ad O j.
To be applied freely.

He also speaks very highly of the following cold cream:

℞ Adipis benzoati, ℥ iv;
Ceræ albæ, ℥ ss;
Cetacei, ℥ j;
Boracis, ℥ ss;
Glycerini, ℥ i;
Aquæ cologniensis, ℥ ijss.

Jamieson publishes a therapeutic note of interest on the cause of the reappearance of pediculi vestimentorum after apparently thorough treatment of clothes. He has found that the ova remain adherent to the fine down on the surface of the body, and hatch out as soon as opportunity offers. Consequently, besides the usual thorough cleaning of the clothes, attention must be paid to the skin as well. Corrosive sublimate baths and mercurial fumigation have both been recommended. Jamieson suggests a warm carbolic bath after the skin has been thoroughly rubbed over with paraffin; or the wearing day and night next the skin of porous bags containing fragments of sulphur.

Dr. Wild showed the Manchester Therapeutical Society some preparations of artificial calamines, which he proposed to substitute for calamine in the treatment of facial skin affections. He found zinc carbonate a much more satisfactory basis than zinc oxide. Jeweler's rouge (Fe_2O_3), which is the coloring matter of real calamine, gave very good results. Armenian bole gave more yellow-tinted preparations, which were frequently suitable. He believed the artificial calamine was preferable to the natural, as precipitated zinc carbonate is finer and softer than the best elutriated calamine.

Dr. Williamson made an instructive communication to the Manchester Therapeutical Society on the palliative treatment of paralysis agitans. He was of opinion that by appropriate remedies much might be done to relieve the persistent trembling. Sound sleep was a first essential, as beyond doubt sleeplessness served to aggravate all the symptoms. To this end he recommended sulphonal or hot whiskey and water at bedtime. Alcohol and even strong tea or coffee during the day appeared to increase the trembling. Writing or needlework, or even holding the arms above the head, was of some temporary benefit; so also the warm bath. Systematic open-air treatment by whatever means most convenient to the particular sufferer should be rigidly insisted upon. Dr. Williamson had tried strychnine, arsenic, potassium iodide, potassium bromide, calabar bean, gelsemium, and cannabin tannate with no benefit. Morphine hypodermically is beyond doubt of great value, but should of course be avoided in a disease of such chronicity; but morphine or duboisine by the mouth seemed comparatively ineffectual. Hyoscine, however, appeared to be the drug of greatest value. Dr. Williamson gave as much as $\frac{1}{60}$ of a grain of hyoscine hydrobromate at a dose; he had

started with $\frac{1}{300}$–$\frac{1}{150}$ grain in pill form, but had found such small doses useless. He now gave the larger dose in solution—two teaspoonfuls of a mixture of one-fourth grain of hyoscine hydrobromate in six ounces of chloroform-water. The dose could be increased to $\frac{1}{75}$ grain without fear. Dr. Leech was of opinion that so large a dose as $\frac{1}{75}$ of a grain might be given by the mouth, but hypodermically would almost certainly be attended by alarming symptoms. Hyoscine seemed to relieve the muscular restlessness and tremor. Tolerance for the drug is usually established in the course of a few weeks, when it is better temporarily to abate the remedy, and resume it at a later period.

To the sufferers from hay-fever at this time of the year it will be welcome news that Dr. Burton claims to abort coryza by the local use of a solution of tincture of belladonna in water—a drachm or a drachm and a half in an ounce of water. He gives the following directions for use: The nose having been well cleared out and a Wallar's irrigator containing about a dessertspoonful of the solution applied to one nostril, close the other nostril and the mouth, and while gradually raising the distal end of the irrigator, make a long inspiration until the air, in bubbling through the solution, carries with it a coarsish spray. Afterwards spray the other nostril in the same way, and then, having well cleared out both nostrils, repeat the process. He vouches for the cessation of the coryza, if the treatment is commenced on the first or second day of the attack, but in cases of longer standing the application may require repetition once or twice in addition. In cases of long standing in which the nasal mucosa is thickly coated with a tenacious mucus, this should be previously removed by warm alkaline irrigations, so that the belladonna solution may act directly on the mucous membrane.

Sir Willoughby Wade makes some practical suggestions on the treatment of abdominal palpitations. This symptom is commonly associated with functional disorder of some viscus or other, and is commonly regarded as an effect of it; hence treatment is directed to the supposed *causa causans* with the usual unsuccessful results. Sir Willoughby Wade opines that we have to deal with a condition of high tension in a limited arterial area, to wit, in the abdominal aorta and the adjacent iliac arteries. He supports his contention by the observation that in these cases there is usually a low tension radial pulse, the blood being concentrated on a splanchnic arterial area to the privation of a somatic. With a view to restoring circulatory equilibrium, he recommends in these cases a small—say $\frac{1}{300}$ grain—dose of nitroglycerin, when an attack of palpitation sets in. He himself has employed the remedy with constant success, and has noticed also that with relief of the abdominal palpitation the radial pulse becomes more full and forcible. He considers that this is the essential principle involved in the Schott treatment, that relief of one circulatory area is best promoted by determination of the blood to another; the baths attract the blood to the skin, and the resisted movements to the muscles, and by emptying the splanchnic vessels the stasis in them is relieved.

At the last meeting of the British Balneological and Climatological Society, Dr. Shirley Jones spoke enthusiastically of the good results obtained in cases of neuritis and neuralgia by treatment with Droitwich brine baths. The general line of treatment for acute cases consists in the use of a hot reclining bath without massage or electricity, but with as complete rest as possible; in cases of the lower limb rest in the recumbent position; for the upper limb rest in a sling; and in uncomplicated cases no drugs at all. Compresses of hot brine water are used for relief of pain. As the acute stage passes off the douche along the course of the nerve is employed. The temperature of the douche varies usually between 80° and 115° F., according to the patient, but in some cases as low a temperature as 65° has been found beneficial. These low temperatures are most suited to cases in which there is muscular atrophy; for these cases the swimming bath is particularly useful, not only on account of its general tonic effect, but also because on account of its buoyancy a limb may be freely exercised with a minimum of exertion.

The vacant chair of Physiology at Edinburgh has now been filled by the appointment of Professor Schafer. No one can doubt that the Curators have selected the right man from among a very strong field of competitors. For research Professor Schafer has of course a world-wide reputation; his experience of teaching ranges over some sixteen years that he has held the post of Jodrell Professor of Physiology in University College, London. At the present moment there are vacant several important professorships and lectureships in physiology in this country; and, moreover, Schafer's departure to Edinburgh will almost

certainly involve a shuffling of the cards within the metropolitan area.

The committee of the Liverpool School of Tropical Diseases has decided to send an expedition to West Africa to investigate the causes of malaria with a view to extirpating the disease. Major Ross is to be at the head of the expedition, which will reach Sierra Leone in August. He hopes to establish his theory that malaria is caused by the bite of a certain species of mosquito, and to devise some method of exterminating the mosquito.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

It may interest the readers of the Therapeutic Gazette to read a few lines concerning the Boucicaut Hospital, the newest one in Paris, and which represents the latest applications of architecture to the care of the sick. This hospital is due to the generosity of Madame Boucicaut, the wife of the founder of the Bon Marché, and was opened on December 1, 1897, by President Faure. Ten years before this date Monsieur Boucicaut died, leaving by will two millions of francs to the Administration of the Assistance Publique. If after settling all minor endowments the sum of eight millions of francs was left over and above, this sum was to be used to found a hospital in Paris. Certain conditions were specified, of which I shall say a few words as I proceed. A certain number of beds were to be reserved for the employees of the Bon Marché; there should no longer exist that rigorous distinction of the hospital into two parts, one for men and another for women; and instead of having an equal number of beds for both sexes, that for men should be in excess, as is justified by statistics.

The plans offered in a competition differed greatly from what is found in America. Fifteen jurors to decide on the plans were chosen—five from the Municipal Council of Paris, two from the Supervising Committee of the Public Assistance, a physician and a surgeon of the hospitals, one of the executors of the will, three architects chosen by the competitors, the administrative director of the Paris works, and the general director of the Public Assistance. One point will strike my readers: it is the small number of medical men indicated, a fact which is due, first, to their rarely remaining any great length of time in one hospital, and secondly to their rôle in a hospital being a purely medical one, no administrative authority being given them. In former times such a condition of affairs did not exist—for instance, Dupuytren was at one time director of the Hôtel Dieu.

The work on the Boucicaut Hospital was begun in October, 1894, and finished in November, 1897. This building, or rather group of buildings, is situated in the Javel quarter, on the south side of the Seine, in a very salubrious part of the city. By personal observation I have been able to note the freshness and purity of the air compared to that found in the center of the city. The fortifications are only 800 yards distant, and this part of the city is but sparsely populated compared with the rest. Though the hospital contains only 180 beds approximately, it covers an area of 30,000 square meters, of which 7500 only are used for the buildings. The various wards are disposed in parallel lines, north and south, so that they receive the sun on one side in the morning and on the other in the afternoon. Brick, stone, and iron are the materials used, and the roof is tiled. An interesting point is the construction of the walls of the pavilion; they are double, and squares of cork are used in their construction, which serve to prevent any untoward effect from rapid variations in the external temperature.

On entering the building from the Rue de la Convention, a wide street paved with wood, one comes into a large hall, from which branch off right and left the services of medicine and surgery. If we go to the right we pass through a long tiled passageway leading to the consultation rooms, and ending at a small pavilion with four beds, intended for doubtful cases. The patient on entering is shown into a large waiting-room, and if he is admitted he is given a bath, a new suit of clothes, his old being sent down by special openings into the underground passages, whence they are taken to the disinfecting department. If the case is doubtful, it is kept in the isolated pavilion; if not, it is taken either to the general medical ward A or to the consumptive ward B. The same course is followed out in the surgical division, there being two distinct wards—one for septic cases and the other for aseptic cases.

Leaving behind us the long building fronting on the street, and entering the large central court, we find that the space before us resembles a huge garden, with four long nar-

row buildings running parallel to one another and of exactly the same form. I have already mentioned the complete separation that exists between these four buildings—ward B being given over to consumptives, wards C and D having each their own operating-rooms, with the various instruments and articles attached thereto. On entering these wards, one is impressed by the beautiful cleanliness, due, first, to the lack of corners (everything is rounded off, and the roof is ogival), to the great quantity of windows (which are arranged in three sets, with various means of opening them, according to their height from the ground), and to the beautiful color used for painting the walls—a sort of rose hue. The floor is made of large white tiles, and here and there a line of darker hue. The ceiling is at a height of six meters, and each patient's supply of air is about eighty to ninety meters.

The ventilation is assured by orifices existing below the windows, and by apertures in the ceiling opening into small aerating towers. All these wards occupy only one story.

The heating apparatus is placed in front of each window, and heat is supplied by steam. The air, on coming through the ventilators, is therefore heated immediately.

At night one or two blue electric lamps furnish the light necessary for watching the patients.

The steam-heating apparatus and the electric plant are placed in the same building and furnished with steam by the same generator, which moreover furnishes the heat to the kitchen, a fine large room, with a magnificent ventilator, and where one is impressed by the use of enormous boilers for cooking. These are hollow, and it is by having the steam come up into them that a sufficient degree of heat is produced.

At the end of each ward there is a sort of veranda with glass sides of various colors, containing shrubs, where the convalescent patients are allowed to remain during the day.

The beds are made on the Herbet system, and can be taken to pieces completely; the chairs are iron, with wooden slabs; the tables are also of iron, with two porcelain slabs. The furniture of the wards is built in accordance with modern ideas, and is made mostly of iron and glass.

The spittoons are also very well arranged, being placed about a yard above the level of the soil, and containing a solution of carbolic acid. Every morning they are carried off on special carriages arranged for this service and completely sterilized.

The cleaning of the wards is done with water and soap. In every ward there is a small opening that leads off from the floor into a pipe, and in this manner the result of the cleaning can be easily removed.

Dr. Letulle, who has charge of the medical service, has tried to transform the tuberculous ward into a species of sanitarium. He has had a tent constructed where the tuberculous patients can lie out during the hot summer months, and a certain number of wicker chairs with covered tops (bath chairs) are used in the same way.

The surgical service, which is under control of Dr. Gérard Marchand, is very well organized, but there are some minor points which have been neglected, such as a special room for narcosis. The operating amphitheater is too small for the number of assistants, who are obliged to crowd around the operator. The service which is perhaps the best, though presenting some minor defects, is the maternity. This part of the establishment, which is under the direction of Dr. Doléris, is quite separate from the rest of the buildings. (Dr. Doléris, the head of the maternity division, visited the United States some years ago. For a number of years, first in a private clinic of his own, and afterwards in a service at the Pitié Hospital he gave lessons in gynecology with practical exercises. These were much frequented by foreigners, to whom Dr. Doléris was invariably courteous. Dr. Doléris's works are too well known by all gynecologists to need mentioning.) There are two buildings in this part of the hospital—a smaller one adjoining the street, destined for the infected cases, with a kitchen, two rooms for nurses, and one for a midwife; on the first floor are two rooms with two beds, a small operating-room, a bath-room, and water-closet.

The Maternity itself is a two-story building. On the first floor one finds a waiting-room, a consulting-room with bath-room attached, the reception-room of the physician, a laboratory, and a museum for pathological specimens. In another wing are two rooms for the midwives, a dining-room, a bath-room, a linen closet, a dining-room for the patients, and a ward containing six beds for patients presenting something abnormal. On the first floor there is the "salle de travail," or parturition ward, with four beds; this is one of the finest wards in the establishment. Adjoining is a bath-room, and close by a

large operating-room for major operations. The beds in the "salle de travail" are so arranged that the end of the bed can be thrown back and the patient brought to the foot of the bed for a case of forceps or version. The maternity ward is large and spacious and contains fourteen beds. Next to it are two rooms for the wet-nurses, who can watch through the windows all that takes place in the ward. There is adjoining these rooms a room in which it is proposed to wash and weigh the infants every afternoon.

I have so far not spoken of the system of underground passages, which is one of the most striking features of the establishment. Underneath the pavilions there is a long tunnel in the form of a horseshoe, lighted from above by small funnels, and giving off lateral tunnels for the different wards. The whole hospital is therefore connected by this underground system of passages, which exists also in Berlin at the Urbain Hospital. This tunnel serves for the carrying of food on small tramways, and the placing of the water-pipes, gas, and electricity. All the soiled linen is carried off in like manner.

Such is a short description of this new hospital, which presents of course a certain number of defects, but which is after all much in advance of the other Paris hospitals.

QUININE IN MALARIAL HEMATURIA.

To the Editor of THE THERAPEUTIC GAZETTE.

SIR: I have been much interested during the past year in a discussion going on among members of the medical profession of the South on the administration of quinine in malaria in its various forms and complications. Physicians of equal eminence are widely at variance. I am constrained to believe that each line of treatment possesses its quota of merit. My experience has long taught me that in the more malignant forms we at times have to call to our assistance all the resources of the art.

The name "malarial hematuria" I conceive to be a misnomer, calculated to mislead the young and inexperienced physician in its treatment. In speculating on its etiology and pathology (I use "speculating" advisedly), I grope along the well worn paths of experience with no data of a scientific nature to guide or direct me. I concede malaria to be the primary cause, but after the initiatory chill, the characteristic urinary discharges, the intensely icteroid condition following, we then have before us manifested in all its intensity the phenomena of biliary poisoning. Cholesterine being the poisonous principle of the bile (Flint's Physiology), we have cholesterinic hematuria, or hemoglobinuria, and as quinine produces cholesterine in the blood (Headland on Actions of Medicines) its administration is clearly contraindicated. The disease in my experience is seldom if ever characterized by periodicity; rigors of varying intensity follow each other in rapid succession, due to the toxins circulating in the blood, also to the altered chemical relationship existing between the blood, the nervous system, and other organs and tissues of the body; the functions of the liver being entirely suspended, a suppression of its action as a destroyer of animal toxins intensifies the peril of the patient. The gall bladder is distended to its utmost capacity by concentrated bile; the ductus communis is occluded by thick inspissated mucus.

The issue of the case depends absolutely upon our ability to keep the kidneys acting until we can arouse the portal system. I will not try in this communication to go into the details of its treatment. Quinine is not admissible at any stage of the disease, nor is it indicated, as it is productive of the disease, its administration often converting a mild case into one of malignancy and hopelessness.

H. C. STINSON, M.D.

DERMOTT, ARK.

SNAKE-BITE AS A CURE FOR PULMONARY PHTHISIS.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: It may be of interest to you and some of your readers to hear of a case that fell to my lot to see and treat, especially the result obtained. The case was a woman thirty-five years old, who for three years has had all the typical symptoms of pulmonary tuberculosis; these I need not mention, but suffice it to say they were all present. The patient was bitten in the face, on the malar bone, by a copperhead snake. I used cardiac stimulants and permanganate of potassium by injection (subcutaneously). The patient then weighed 92 pounds and was emaciated and weak. From the date of bite her weight increased to 138 pounds, the hemorrhages ceased, and to make a long story short she is now almost well, the phonendoscope showing only a little trouble.

PAGE A. GIBBONS.

MORGANTOWN, WEST VIRGINIA.

—THE—

Therapeutic Gazette.

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THE TREATMENT OF APOPLEXY.

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No disease taxes the skill of the physician more than apoplexy. The diagnosis of the form of lesion causing the symptoms and the determination of the limitations of human interference demand experience and judgment. The fact that so little can be done in a case of cerebral hemorrhage adds to the difficulty of deciding precisely what that little shall be. The dissimilar methods of management demanded in cerebral hemorrhage and embolic obstruction enhance a hundredfold the need of care in diagnosing the lesion. A misjudgment in the arranging of the position of the patient may mean death instead of life. The administration of a heart stimulant in place of a heart sedative may bring the case to a promptly fatal termination. An unwise attempt to evacuate a full stomach may provoke a renewal of the hemorrhage. A venesection may hasten or retard the end. All these questions must be rapidly and seriously considered in the presence of the patient, who will usually be found surrounded by frightened and clamorous

friends. Few occasions will the physician have wherein he will have more need of his steadiest nerve, readiest wit, and keenest judgment. For that reason it is not inappropriate to carefully review the care and management of so frequent and protean a trouble as apoplexy.

In considering the treatment of apoplexy most writers begin by dividing the subject into the prophylactic treatment and the treatment of the attack and sequelæ. It would be better, it seems to me, if the emphasis were laid more upon the treatment of the different conditions of cerebral hemorrhage and cerebral embolism. In confusing these, more serious errors are made than in any other way; and therefore it is of the utmost importance that a clear diagnosis be made and the prophylaxis and attack be handled accordingly. So important is this fact that the consideration of the treatment of apoplexy cannot proceed without a simultaneous consideration of the differential diagnosis. In the prophylaxis this differentiation between hemorrhage and embolism is almost impossible. The history of the case is about all that we have to rely upon. A previous attack of rheumatism followed by endocarditis would predispose to embolic obstruction; likewise would certain deteriorated blood states and circulatory weaknesses suggest embolism. On the other hand, high living, full habit, atheromatous arteries, would incline one to fear hemorrhage. Age counts for something, as well as heredity. But after all it is difficult, and fortunately not so necessary, to differentiate in managing the prophylaxis; for in both threatened hemorrhage and embolism the management of the prophylaxis is more alike than is the treatment of the attack. A quiet life, both physically and mentally, is a desideratum. The digestive and nutritive organs should be relieved of strain and encouraged to functionate normally. The emunctories should all be kept active to rid the system of deleterious substances. Sleep should be secured. Mental and physical activity should be evenly balanced. In a word, the threatened victim should be induced to lead a life of mild and even tenor, devoid of anxiety and brightened by as much happiness as possible. Beyond this little can be offered in the way of advice against an attack of hemorrhage or embolism.

It is quite otherwise in regard to the attack itself. Now the advice becomes of definite and distinct importance. The differential diagnosis must be made as sharply as possible. The suggestions to the nurse and attendants must be precise and not open to the least misconstruction. The patient when first seen will be almost invariably found lying flat on his back. Position is an important factor, and it behooves one to decide quickly how to place the patient to the best advantage. Gravity plays a rôle, though a slight one, in the force of the circulation; hence it must be remembered in connection with the nature of the lesion. If the case is one of hemorrhage, a half-reclining position on one or the other side of the body is the best. Heidenhain* recommends that the patient be put in a sitting-erect position and maintained in such an attitude as long as possible. I have seen amelioration of the symptoms by this simple maneuver. Often the friends standing about will strenuously object, but a compromise may be made by propping the patient against the overturned back of a chair in a half-reclining position. While he is in this attitude cold in the form of cracked ice should be applied to the head to cause as far as possible contraction of the cerebral vessels, and heat to the lower extremities to dilate the blood-vessels there and so lessen the blood-pressure in the brain. The latter may be further accomplished by the cautious administration of a cardiac sedative, such as tincture of aconite or veratrum.

If the case is one of embolic obstruction the reverse of all this should be done. Now we desire to increase the intracranial blood-pressure; for the embolism being already there and beyond the hope of immediate removal, it is our object to check its progress and further development by suddenly making it stationary. To do this the patient's head should be placed as low as possible. The cold and heat may be applied as before, but instead of a cardiac sedative a stimulant now acts more favorably, such as alcohol, ammonia, or even small doses of digitalis and ether.

The importance of attending at once to the decubitus of the patient is brought out by the fact that undoubtedly some fatalities occur from suffocation. Kind friends, not knowing what to do, put the patient on his back, with head low, and administer brandy, milk, or whiskey. Very often the tongue is partially paralyzed, as well as the pharynx, while the sensitiveness of the buccal mucous

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* *Berliner Klinische Wochenschrift*, Berlin, Feb. 10 1890.

membrane is lost. Saliva and fluids collect, obstruct, and even enter the air-passages, setting up inhalation-pneumonia. The obvious thing to do is of course to raise the head, place the patient on the side, carefully pull forward the tongue, and swab out the mouth with a dry rag or bit of linen moistened with some aromatic, antiseptic mouthwash.

As the respiratory power is usually diminished, it is important that the patient should have all the fresh air possible. Crowding about his bed should be forbidden, and the windows even in cold weather be more or less open. It may even be necessary to perform artificial respiration, this being done with as little disturbance of the patient as possible, and only until the respiratory centers have sufficiently recovered from their shock to resume their normal functions. All constriction about the neck by tight clothing must be removed, so that the return circulation may not be obstructed. To increase the blood-pressure within the cranium in embolism, it may be well at times to apply the Esmarch elastic bandage to the lower extremities. It would be unwise to do this as a routine measure, but its worth in some cases cannot be doubted. To determine the blood away from the head we have two rapid and powerful methods, namely, bleeding and hydragogue purgation. The old-time practice of placing two or three drops of croton oil on the back of the patient's tongue is a good one. A brisk enema may be employed in some cases, but usually it is too slow in action. The same may be said of elaterium. Cerebral congestion is certainly modified by quick action upon the circulatory and glandular apparatus of the bowel, as can be clearly demonstrated; hence it is a rational conclusion to hold that the same means will be effective in lessening the intracranial blood-pressure in hemorrhage.

In regard to venesection, or the abstraction of ten or a dozen ounces of blood, there is a wide divergence of opinion. At one time it was a routine practice and consequently abused. On the other hand, there are those who boast that they never bleed a patient. Of the two extremes the latter is the preferable one. The abstraction of a few ounces of blood is almost immediately followed by a partial return to consciousness, and hence the one-time popularity of the treatment. It should be remembered, however, that the heart action in apoplexy is usually weakened. Therefore, to still more weaken it by depriving it of its natural stimulus, the blood, is hardly a commendable procedure. Only in sthenic cases with flushed countenance, full pulsating vessels, and a vigorous general physique is venesection to be thought of. The thinning of the blood diminishes its tendency to coagulation at the seat of hemorrhage and lessens its stimulating power upon the medullary cardiac center and heart muscle. In most cases these disadvantages would so far outweigh the possible little benefit due to the mechanical diminution of the intracranial blood-pressure that I am generally opposed to the operation. In the few cases in which I have abstracted blood, it seemed to me that the slight benefit and partial restoration to consciousness were so temporary as to be without any special value. In one case I fear it hastened the end, though both the consultant and myself anticipated the best of results.

All such slow means of withdrawing blood from the head as leeches to the temples, mustard to the nape of the neck, blisters, etc., may be tried in some cases, perhaps most cases; for, fortunately, even if they are slow they are not open to such objections as is venesection. If they irritate the patient they had better be desisted from, for the patient's distress will tend to a return or extension of the hemorrhage.

Diuretics are judicious, and in this connection it is well to mention that catheterization will sooner or later be required in almost every case. The bladder is usually paralyzed to a certain extent and fails to void its contents. Unless the catheter is promptly and systematically used the patient will experience distress, if he does not acquire a cystitis.

The skin should be attended to, and a gentle rubbing of the surface of the body with alcohol and tepid water cannot fail to be of some benefit. The enormous capillary circulation in the deeper layers of the skin may be made to retain a large amount of blood by the application of warmth to the body surface. Moreover, the cleansing of the skin with warm water awakens the activity of the glandular apparatus, and this will aid in determining the flow of blood away from the head.

It will thus be seen that very active treatment immediately after an apoplectic shock is uncalled for. Beyond careful nursing, quietude, arranging of the patient's position, attending to the respiration, nutrition, and

excretions, the physician can give but little advice. If the shock is so severe that death is inevitable, little that art or science can do will be of any value one way or the other. The end will come in a few days or hours, and though the occasional twitching of the muscles of the extremities as a result of the local irritation of the clot may awaken false hopes of a return to consciousness, the physician will serve his interests best by carefully guarding the family against any fallacious anticipations. If, however, consciousness partially or completely returns, and the patient is a hemiplegic with or without aphasia, the physician can do a great deal, not only for the victim's comfort, but even to ameliorate to a large extent the distress caused by the various sequelæ. In fact, this is the stage of apoplexy in which medical science can play its best hand. The storm has passed; it now remains to restore order as far as possible out of the wreck, and in doing this the attendant can sometimes do wonders. In the first place, every precaution spoken of under the head of prophylaxis should be adopted to prevent a return of the shock. Absolute quiet, mental and physical, with the head elevated; light, nutritious, non-nitrogenous diet; gentle sponging of the surface of the body; abundance of fresh air; and all those agencies calculated to cheer, invigorate, and nourish the patient, so far as he is capable of being so acted upon, should be carefully thought of.

While the clot is undergoing organization and surrounding itself with a capsule, the paralyzed muscles will become somewhat atrophied. To preserve the muscles in the hope of their resuming their function if the nervous centers should regain part of their power, faradism, massage, and gentle passive movements are to be instituted. Just how soon this is to be done is the source of a difference of opinion. In my own experience I have found it advantageous to begin very early—gently, of course, at first—not later than the first or second week after the shock and subsidence of all signs of irritation or possible inflammation. Passive movements and the passage through the muscles of a current of faradic electricity, just sufficiently strong to produce easy, regular contractions, should be made systematically for a few minutes each day. I am fond of using olive or cocoanut oil when giving the massage, as it softens the skin and, I believe, favors to a slight extent the nutrition of the underlying tissues. At no time should anything cold be placed against the body, and at all times the patient should be clad with warm, non-irritating garments. Later on it is a good thing to encourage the patient to attempt voluntary movement. Of course, this will be impossible in many instances, but he should move the well side, and the attendant may assist him by raising at the same time the paralyzed limb. Ofttimes the patient thinks he is doing this of his own will, and the hopefulness which it inspires cannot but be of benefit; nay, more, such simple maneuvers have kept the cortical memory or representative centers alive, so that when the motor areas had partially recovered their function the patient was better able to attempt and even succeed in performing voluntary movement than he otherwise would have been. Reeducation of paralyzed, or rather partially paralyzed, muscles is an important part of the physician's duty. Many a hemiplegic would have been less hemiplegic if the memories of muscular movement had been preserved by the early practice of passive movement in conjunction with attempted voluntary movement.

What I have just said applies likewise to the aphasia following the shock. The speech center should be encouraged to functionate, or at least an attempt made early in the trouble to awaken the activity of the corresponding speech center of the opposite side. These centers are the memory or representative centers for speech, and hence if a patient is utterly neglected it will happen that when the center recovers from the shock, the power of speech will be much less than it otherwise would have been. Hence, as soon as consciousness is sufficiently restored, I have the nurse for a few moments each day teach as she would a child the names of persons and things, and if possible get the patient to repeat them after her. It is astonishing, in a certain percentage of cases how strikingly and rapidly the aphasic symptom may in part be recovered from by this prompt and regular reeducation of the memory centers for speech. In cerebral as well as muscular physiology it is an axiom that exercise increases nutrition and function. Many an aphasic hemiplegic would undoubtedly have been less of an aphasic and less of a hemiplegic by the systematic exercise of his cerebral structures as soon after the shock as possible, and when all signs of inflammation and irritation had subsided.

In all traumatic cases, and in all cases in

which the symptoms indicate a superficial location of the clot, trephining for the removal of the latter is to be taken into serious consideration. I recall the case of a boy of some five years of age who fell over a balustrade and sustained a severe concussion of the head, with the formation of an intracranial clot with all its accompanying signs of unconsciousness, localization, and stertor. The spreading of the clot immediately after the fall could be clearly observed by the spreading and deepening of the muscular paralysis. Trephining was immediately performed, with a partial restoration to consciousness and a slight return of the muscular power. The action of the muscles was a striking phenomenon. At first they were violently contracted, probably because of the irritative action of the clot; then they became paralyzed completely, with a more or less set rigidity. After trephining they relaxed completely, and remained so, or were very feebly moved as a result of subconscious volition. Death occurred in a few hours, however, from exhaustion and shock. The removal of a clot deep in the centrum ovale is a hazardous and difficult operation. It is attempted, however, but with little genuine success. The paralysis in such a case is not relieved, but a source of infection and irritation is removed and makes the operation at least one to be thoughtfully considered.

I have very little faith in the so-called sorbefacient powers of such remedies as the iodide of potash, gold, arsenic, etc. As alteratives they may indeed somehow modify the clot or the results of its presence in the cerebral tissues, but I am inclined to think that much of their effect is due to some kind of stimulant tonic power. At all events, their administration does seem to be of some benefit in some cases, and they are therefore to be commended.

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DISPLACEMENTS AND DILATATIONS OF THE ABDOMINAL ORGANS; THEIR RELATION TO FAULTY MODES OF DRESS, AND THEIR TREATMENT.

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It would be impracticable within any reasonable limits to discuss this topic exhaustively and with full reference to its extensive bibliography. To do so would involve a consideration of the whole subject of the atony of the muscular abdominal walls and of the ligamentous supports of the intra-abdominal organs, with its most frequent primary or direct cause in the unhygienic dress of the great majority of women, as well as the sedentary habits and neglect of exercise in both sexes. We would need to consider, further, the indirect cause of this atony in the lowering of nutrition which results from a deficiency of pure air and sunlight, to say nothing of imprudence in diet, irregular hours of eating and sleeping, the abuse of narcotic drugs, and many other hygienic errors.

Attention will be called, therefore, to the following salient points only of a theme which is of deeper and more far-reaching importance than many physicians even realize:

1. Loose and movable kidneys, which term may be made to include the aggravated stage known as floating kidneys, rarely constitute a single or independent pathologic condition, but nearly always form part of a general disturbance of the abdominal contents, involving also either a dilatation or displacement of the stomach and transverse colon, as well as, in most cases, a marked sagging downward of the small intestines. Exceptionally the liver and spleen also sink below their proper positions.

2. This abnormality of the stomach, intestines, and other organs, notwithstanding assertions to the contrary, is in no sense a consequence of the looseness of one or both kidneys, but all result from a common cause, and even after the kidneys have been fastened in their normal position by an operation the former does not as a rule disappear or get well without appropriate medical and mechanical treatment.

3. This group of displacements, etc., under discussion was first fully described by Glenard in 1887, though in part recognized by others at an earlier date. It was called by him enteroptosis, but a more appropriate name is splanchnoptosis. It is also known as Glenard's disease. Chief among its many injurious results are constipation, nervous dyspepsia (in the earlier stages), and catarrh in various parts of the gastrointestinal tract, including especially the stomach, both large and small intestines, and the appendix vermiformis; also neurasthenia, anemia, insomnia, weak heart, and other symptoms dependent upon the autointoxication secondarily induced.

4. A very large proportion of uterine flexions and versions in the non-child-bearing

woman certainly, and probably also in parous women, are for the most part a direct mechanical result of the pressure from above of displaced colons heavy with retained feces, and low-lying dilated or displaced stomachs, which after a full meal may often be found resting immediately upon the bladder and uterus.

5. Displacements of the abdominal viscera are very much more frequent in women than in men.

In a large number of examinations of abdomens of which full records have been preserved, made during a period covering less than three years, and including the cases of 710 different persons, there were 362 patients in whom the greater curvature of the stomach was found at or below the level of the umbilicus as a result of either displacement or dilatation. There were many other cases in which the departures from the normal were present to a less extent. In exceedingly few—in not more than one per cent—of these 362 displacements and dilatations had the condition been previously recognized, so far as could be learned.

Of the above mentioned 362 abnormal stomachs, 122 were in men and 240 in women. Almost exactly two-thirds were thus in the female sex and only one-third in males. Of the displacements, in which the whole organ had descended instead of a part only having been stretched downward, the disproportion is still more striking. There were eighty of these, of which only twenty were in men, and sixty, or just three times as many, in women. This is in spite of the fact that nowadays, in cities at least, outside of the laboring class, a large proportion of men take scarcely more exercise than women, and all classes of men abuse their stomachs far more generally by the pleasures of the table and the temptations of the dram-shop. The conclusion is inevitable, therefore, that the great preponderance of this trouble in the weaker sex—weaker mainly because of their hygienic faults—is due largely to the harmful modes of dress prevalent among them. The constricting corset not only limits respiratory movements and tends by its direct compression to force several of the viscera inward and downward, but also keeps the lower thorax and entire abdomen of the wearer in splints even when not very tightly laced. In this way the muscles of the underlying region—precisely those whose function it is to help support the organs in place—are prevented from obtaining any efficient exercise, so that increasing flabbiness and atrophy of the abdominal walls ensue as a matter of course.

Further, the heavy dragging skirts, unsupported in the case of most fashionable ladies except by pressure upon the ever-weakening trunk muscles, with some help from the projecting hips, exert, whenever the victim is on her feet, a continual downward traction upon both the relaxing walls and yielding contents of the abdomen.

In view of these conditions the only wonder is that any woman who has conformed to the requirements of fashion during the years of adolescence (when the structures involved are especially pliant and easily pressed or stretched away from the normal), is to be found with healthful abdominal organs in their proper positions. And since many more young men than formerly, especially soldiers, militiamen, and the cadets in the numerous military schools, have taken to holding up their trousers with tightly buckled belts, which are only less injurious than corsets, we may expect to meet in the male sex with a larger crop of displaced organs by and by.

The statements contained under the foregoing five heads embody facts familiar to most physicians who have done much special work in diseases of the digestive system, though one or two of the points are not yet fully admitted by all. Our gynecologic friends, advancing steadily and triumphantly upward from their original habitat in the pelvis, have reached the regions of the appendix and the kidneys, which they already claim as their own. Edebohls, who is one of the ablest of them, and a few other brilliant operators of like enthusiasm, virtually insist now that any woman's ails that refuse to yield to a removal of the ovaries and tubes, uterus and appendix, must certainly be cured by anchoring in position any kidneys that they may find to be movable. These gentlemen do not seem to have yet reached a practical realization of the fact that dilated or displaced stomachs, which are nearly always associated with loose kidneys, are very often the principal cause of the seriously impaired health which results from the general atony and giving way of all the intra-abdominal organs. Yet these abnormalities require treatment quite as much as, and usually far more than, the movable kidneys. Indeed, the same gentle measures that will in time commonly restore the atonic and displaced stomach and intestines nearly if not quite to

the normal, often overcome the mobility of the kidneys; and when they fail it is time enough to operate. Yet Edebohls in his recent papers does not show any appreciation of the fact that in these complicated cases anything is necessary except to do a nephrorrhaphy for the kidneys, and then, upon occasion, remove the appendix for the chronic appendicitis which he holds often results from, and "may be the only symptom of, movable right kidney," a new doctrine which is, to say the least, by no means proved.

Since writing the foregoing part of this article I have read Dr. W. Gill Wylie's paper on "Anemia as Observed in a Gynecological Clinic, etc.," which appeared in the *Medical Record* of May 20. It is gratifying that this most distinguished gynecologist freely admits the only important point I have made here, which there seemed any likelihood of being disputed — that is, that ptosis of the stomach and colon is a frequent cause of uterine displacements. Referring to cases of "melancholia, hysteria, hypochondria, etc.," he says: "These cases are frequently associated with relaxed abdominal organs when there are loose kidneys, ptosis of stomach, with omentum and intestines crowding down in the pelvis *on top of a retroverted or flexed uterus, and the patients have been treated indefinitely with pessaries for falling of the womb*," etc.

In the same paper Wylie also discusses cancers and ulcers of the stomach and intestines, constipation, chronic appendicitis, obstruction of the gall-ducts, chronic colitis and proctitis, etc., as causes of anemia, and his method of treating constipation especially, all of which proves that he is developing rapidly into an able and skilful specialist for diseases of the entire digestive system. Verily the gastroenterologists are in danger of finding their occupation gone.

The general surgeons, also, are turning to the digestive organs as a fruitful field, and are already pulling up and stitching in place prolapsed stomachs and taking tucks in dilated ones. There are, indeed, conditions in which these new operations may be indicated, though most cases of the kind are curable by non surgical methods. When the pylorus is obstructed by a tumor, the cicatrix of a healed ulcer, or other cause which is insuperable by milder measures, or in persons who cannot afford either the time or expense of prolonged treatment by massage, gymnastics (or sometimes a period of rest in bed), intragastric electricity, etc., required to effect a cure, it is entirely proper to invoke the aid of the surgeon. Let us, also, render a full tribute of praise to the untiring energy and genius of the men who have wrought such marvelous results in abdominal surgery in these latter days — especially our American *confrères*, who now stand unsurpassed in their line. But at the same time it is just that the equally beneficent and often life-saving work now being done in this region by far less dangerous, even if less rapid and brilliant, methods should be given its proper meed of recognition. The gastroenterologists of the United States, though yet comparatively few in numbers and lacking in efficient organization, are achieving here and there, individually, results which have not yet commanded from the profession at large the attention they deserve.

Edebohls puts forward the claim, supported by the dictum of Glenard, that though there may be cases of movable kidney without enteroptosis, there can be no enteroptosis without movable kidney. This statement, notwithstanding the high authority from which it emanates, will not bear the test of clinical experience. Most of the special workers in this field see cases that disprove it. My own records alone show numbers of such. Two of the three cases reported below had gastroptosis without nephroptosis.

CASE I.—A married lady, aged fifty-six, consulted me September 20, 1898. Her weight then was 92 pounds, and she had been in ill health for several years, complaining particularly of her stomach. She had had the best of medical advisers before, but had never been examined by a stomach specialist, and the only diagnosis reached, so far as she knew, was dyspepsia and nervous prostration. Her worst complaint was a "sore, tired, distressed feeling in the pit of the stomach and a constant dragging sensation when on her feet;" also great weakness, a poor appetite, and constipation. She had passed the menopause eight years before. The examination after inflation with CO_2 showed a marked prolapse of the entire stomach with dilatation, the lesser curvature being just below the lowest ribs, and the greater curvature four inches below the level of the umbilicus. The liver was enlarged decidedly, and the heart was somewhat hypertrophied, the area of dulness extending to the nipple line and the apex beat being found in the same line. The kidneys were in normal position, as demonstrated by repeated careful examina-

tions. Transverse colon pushed downward below stomach. Other organs negative. Analysis of stomach contents showed a slight excess of hydrochloric acid, but fortunately not enough to contraindicate abdominal massage. The treatment consisted of a bland and easily digestible diet, special exercises for the abdominal muscles, a special abdominal supporter containing springs which exerted strong upward pressure; full massage, including deep kneading of the abdominal region; galvanism from spine to solar plexus, and also over the course of the pneumogastrics in the neck. Her skin was sallow, almost cachectic, and her countenance showed mental depression. The urine contained an excess of indican. She received in the way of medicine strychnine and hypophosphites for a part of the time, and a mixture of nuclein and bone-marrow later. The Drysdale aperient was given for the bowels. This was a very exceptional case, in that the stomach could not be trained to tolerate a tube or even the fine rheophore of an intragastric electrode, and therefore intragastric electricity, one of the most efficient remedies at our command, could not be given.

October 6. Her appetite has come up, and the dragging sensation is much relieved.

November 14. Still weak, but has gained five pounds. Scarcely any discomfort now. Lower border of the stomach one and a half inches below the umbilicus.

November 21. Stomach extends to umbilicus only. Area of liver dulness normal. No more dragging or distress in stomach. Appetite better.

December 27. Feels much stronger and better. Can walk eight squares now without getting tired.

January 24. Still improving; stronger; better color, and good sleep.

At the last examination, made shortly after this, her stomach had come up so far that the lower border was entirely above the umbilicus. She had not fully recovered her normal weight and color, but felt so well as compared with her former condition that she could not see any necessity for continuing treatment longer.

The two following cases exemplify further what can now be accomplished without surgery. My records contain scores of cases of Glenard's disease in which not only have the symptoms been either removed or markedly ameliorated without the help of the knife, but also in many of them the prolapsed stomachs have been gradually brought up to nearly their normal positions (as in Case I above), and the dilated ones, when not due to obstruction, have almost uniformly been contracted until the greater curvature has been brought well up above the level of the umbilicus. Occasionally even the loose kidneys have ceased to be movable or even palpable, and when this failed to be accomplished the pain and tenderness in the affected kidneys in nearly all the cases have been wholly relieved.

Case II. — Unmarried lady aged twenty-three; came under treatment January 17, 1899. Always well until the previous April, when she had scarlet fever, and following that, according to her own statement, albuminuria. This disappeared two weeks ago. For half a year past she has complained very much of morning nausea, with occasionally nausea all day. Menses irregular of late and very painful. Always very constipated; often several days without a stool. Does not take laxatives except very rarely. Much flatulency, the gas passing freely both ways. Used to ride a wheel, but could not now, being too weak. She was extremely thin in flesh and very anemic. Examination showed liver enlarged slightly, lungs normal, and heart enlarged about one inch to the left; apex beat also too far to the left. Stomach dilated from normal above to two inches below the level of the umbilicus. Uterus anteflexed and very sensitive to the touch. Left ovary also sensitive, though not appreciably swollen. Much leucorrhea. Findings otherwise negative. Analysis of the stomach contents after Ewald test breakfast showed a total acidity of 40, but no free hydrochloric acid by the Mintz method, and a small amount of mucus. The urine was found normal by repeated examinations, except that there was an excess of triple phosphates.

The treatment included faradism applied directly to the inner walls of the stomach by means of my improved intragastric electrode, massage, special exercises for the abdominal muscles, reform dress, and tonic medication, including especially hydrochloric acid and pepsin; also a careful but regular use of mild laxatives. The result was fortunate in spite of a severe and stubborn attack of influenza which came on during the treatment, and of a pending marriage engagement with its disturbing influence. She was well enough to discontinue active treatment early in April, and my last entry showed the lower boundary of her stomach to be one and a half inches above the umbilicus, and liver and

heart both within their normal limits. Her bowels were regular without laxatives, and all nausea had disappeared.

CASE III.—Lady aged thirty, married six years but never pregnant, consulted me September 14, 1898. The chief complaint for which she desired relief was a pain alleged to be in the region of the right ovary, and for which she had received treatment *per vaginam* off and on for five years. She had indigestion after sweets or fried things, and suffered from dizzy spells. She was also nervous, often constipated, and had a sallow complexion.

Examination showed nothing abnormal in the pelvis, except that the uterus was inclined slightly backward. No swelling or sensitive spots in the adnexa. Liver, heart, and lungs were normal. The stomach was dilated to one inch below the umbilicus, and a light, non-nitrogenous luncheon was not yet out of it at the end of three hours, showing bad motility. Splash pronounced even before drinking anything. Right kidney quite movable and also tender. The appendix was also slightly thickened and tender. The stomach contents after the Ewald test breakfast showed no free hydrochloric acid, but a total acidity of 38; some gastric catarrh.

Treatment: Abdominal supporter, faradism with my intragastric electrode, abdominal exercises, massage, lavage, laxatives, and tonics, including hydrochloric acid and pepsin.

Result: December 23 she reported that she felt as well as she ever did, and though all her faulty organs were not anatomically correct, she could not afford to go on with treatment. Her stomach then extended to one inch above the level of the umbilicus instead of an inch below as at first; it emptied itself in about the normal time. There was no longer complaint of pain in the region of either the appendix or the right kidney, which was still somewhat movable. She was symptomatically well, and her gastric dilatation was virtually cured.

Most of the points already made are strikingly confirmed in a recent paper by Stengel and Beyea.* They report very fully a case occurring in the practice of the late Dr. Wm. Pepper, which was carefully studied by him and by Dr. Stengel. It was that of an unmarried woman of twenty-five with an extreme degree of splanchnoptosis, the stomach having been displaced to within one and a half inches of the pubes, the intestines also displaced downward, and the right kidney dislocated and movable. No reference was made to the condition of the pelvic organs or appendix. There was no history, the authors say, of traumatism, illness, nor of abdominal distention by pregnancy or fluid effusion, to explain the displacement, and they state that "the cause, therefore, must be considered as most probably compression of the thorax by tight clothing and relaxation of the ligaments."

A nephrorrhaphy was first skilfully done by a prominent surgeon and was without marked results, though usually this operation is followed by relief of the symptoms due to the renal mobility. The right kidney continued to be palpable, below its proper position, and often painful. The flatulency, constipation, and other severe gastrointestinal symptoms persisted. The enormous gastroptosis continued, and the organ even increased in size after the nephrorrhaphy. A year later, in April, 1898, Dr. Beyea did an ingenious operation to bring up and hold the stomach in place. Tucks were taken in the gastrophrenic ligament and in the gastrohepatic omentum. Nine months later the patient was found to have gained in health and weight, and by the end of thirteen months she was decidedly better in all ways. Examination showed the greater curvature one and a half inches below the level of the umbilicus.

This was a very creditable result for so bad a case, but it is worthy of particular notice that it was not so favorable a result as was obtained in my Case I, in which non-surgical methods only were employed.

In addition to the five propositions laid down in the beginning of this paper, which can be proved beyond question if not already sufficiently well established, a few further important conclusions are fairly deducible:

1. The fact that over one-half the patients examined at my offices during a period of about three years suffered with displacement or dilatation of either one or several of the abdominal organs, shows the enormous frequency of these serious diseased conditions—a state of affairs little understood or appreciated by the profession at large.

2. The fact that, in so far as the patients or their friends were aware, not more than one per cent of the large number of 362 displacements and dilatations of abdominal organs had been previously diagnosticated,

* "Gastroptosis; Report of a Case in which a New Operation was Undertaken and the Patient Greatly Improved," *American Journal of the Medical Sciences*, June, 1899.

indicates an extraordinary indifference to this important class of cases on the part of physicians generally.

3. There is a deplorable lack of knowledge of what can be, and is being, done in abdominal displacements and dilatations by simple, safe, and efficient, even though often tedious, non-surgical methods.

There seems to be a prevalent impression that physicians who devote themselves to the diseases involving the digestive organs are occupied chiefly with washing out stomachs and testing gastric contents for hydrochloric acid. Manifestly it behooves such specialists to let the real truth be known more widely, in the interests both of conservative medicine and of humanity.

1928 CHESTNUT STREET.

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*A NOTE ON THE EMPLOYMENT OF SOLUTIONS OF TOLUIDIN-BLUE IN EXTERNAL INFLAMMATORY DISEASES OF THE EYE.**

BY CLARENCE A. VEASEY, A.M., M.D.,
Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic; Demonstrator of Ophthalmology, Jefferson Medical College, etc.

In the *Philadelphia Medical Journal* of August 13, 1898, the writer called attention to the use of solutions of toluidin-blue in the treatment of the external inflammatory conditions of the eye. At that time he had been using these solutions with excellent results for about six months in most of the cases coming under his observation, and since then a much more extended experience has given no cause to change the conclusions then formed.

Inasmuch as some of the members may not be acquainted with the drug, the writer may be pardoned for repeating that it is a bluish crystalline powder, soluble in alcohol or water, and according to Merck, "is prepared by oxidizing a mixture of thiosulphonic acid and orthotoluidin with a chromate to an insoluble sulphonic-acid green, then boiling the latter with a zinc chloride solution, and subsequently oxidizing the leuco-compound. While considered a zinc chloride double salt of dimethyltoluthionin, its composition shows it to be a hydrochlorate."

The strength of the solution that has given the best results, and proved the most satisfactory, is 1 part in 1000. Solutions of varying strengths, from 1 in 10,000 to 1 in 20, have been tried, but the stronger solutions produce a much more intense stain of the tissues and surrounding skin, and do not appear to be any more effective than the solution of the strength of 1 in 1000. The strongest solutions that were tried did not produce any irritation.

In the early experiments the solutions of toluidin-blue were employed alone to flood repeatedly the conjunctival cul-de-sac in the manner that is customary with solutions of boric acid, but later experience showed that it was just as effective to cleanse the affected part first with some cleansing lotion—say boric acid or salt solution—using it with sufficient force to get rid of the accumulated secretions, and then to flush thoroughly with the solution of toluidin-blue, and after it has remained in contact with the parts for a while to wash off the excess with the boric solution. As every particle of mucus or muco-pus is stained a deep blue, none can remain on the conjunctiva without being detected. The stain on the fingers and surrounding skin is readily removed with a moist pledget of absorbent cotton.

As to the frequency of making the instillations, the writer has been guided in a given case by the custom of using other applications—the more copious the discharge, the more frequently the instillations have been made.

The solutions have been employed in the different varieties of conjunctivitis and seemed to be of special value in those varieties accompanied by marked discharge, such as the acute contagious and the purulent, the discharge after a few applications becoming markedly lessened. In connection with its employment in purulent conjunctivitis I am told by one of my former clinical assistants, Dr. A. H. Read, who at my suggestion tried it for urethral irrigations in gonorrhea, that it produced very satisfactory results. In corneal ulcers and abrasions, it not only promotes the reparative process, but, as was pointed out in the previous paper, stains them a deep blue (in this respect being similar to the green reaction of fluorescin), thus enabling one from day to day, at the time of treatment, to note the progress in size.

In purulent dacryocystitis the results are equally good. In recent uncomplicated cases the writer has seen the almost entire cessation of discharge after a few thorough washings. Experience has shown that it is better to cleanse the duct with the boric or saline

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*Read by title at the meeting of the Pennsylvania State Medical Society, at Johnstown, May 17, 1899.

solution first, and then to follow with copious irrigations of the solution of toluidin-blue. If the solution does not regurgitate into the conjunctival cul-de-sac or drip into the nose, it is allowed to remain in the duct. If, however, there are some sinuses or pockets, in which the solution has accumulated and from which it is constantly oozing, either from the canaliculus or from the nasal duct, it is better to follow the toluidin-blue irrigations with some colorless solution.

This note is presented in the hope that other members of the Society will test the drug in their own work, not only in inflammatory conditions of the eye, but in other conditions accompanied by discharge and requiring a cleansing and stimulating wash, and report to us the results of their experience.

116 SOUTH 19TH STREET.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

BY DAVID BOVAIRD, JR., M.D., NEW YORK,
Pathologist to the Foundling Hospital; Attending Physician to the Seaside Hospital of St. John's Guild; Assistant to the Chair of Pediatrics, University and Bellevue Hospital Medical College.

In discussing the treatment of these conditions we shall do well to bear in mind the exciting causes and the pathological lesions which underlie them. We are fairly well agreed that the chief factors in the production of summer diarrheas in infants are: (1) improper food; (2) increased heat; (3) foul air, and like unhygienic conditions. With reference to the pathological findings we are often puzzled and confused by the variety and extent of the lesions found in the gastrointestinal tract and the apparent lack of harmony between the clinical history and the results of autopsies. Doubtless the difficulty here lies in the fact that our ordinary autopsies do not bring out one very essential feature of these cases—the presence of great numbers of bacteria and the toxins produced by them. Suffice it to say here that we regularly find a simple catarrhal inflammation of the mucous membrane of a greater or less portion of the gastrointestinal tract; that the stomach, lower part of the ileum, and colon are the parts most affected; that the changes are usually more marked as they advance down the intestine; and that we rarely see any lesion more severe than a necrosis and exfoliation of the superficial epithelium of the mucous membrane. Added to these tissue changes we have the presence of great numbers of bacteria, not of one but of many kinds, and the toxins that are produced by their growth.

With these points before us we may take up the question of treatment to better advantage.

1. *Prophylaxis.*—Much has been done, but more remains to be done, in this regard. The food of infants—*i.e.*, children under two years—during the summer months at least should consist of milk alone. That milk, when given, should be fresh and free from the bacteria that may do harm. Fresh milk can ordinarily be had by any careful person, but to make sure of the second point it is necessary, as a rule, to subject the milk either to sterilization by boiling or to Pasteurization. Of the two methods the latter is doubtless preferable where it can be properly carried out. If there is uncertainty about it, we had better advise boiling the milk during the summer months. Furthermore, having secured a pure and sterile milk, it seems advisable to the writer to counsel moderation in the use of it during the danger season. We have lately been so thoroughly instructed as to the rate at which an infant should gain by week and month, and the quantity and proportions of the milk required to secure this result, that some of us forget that we are not dealing with a machine, and continue to feed during the summer without regard to the natural inclination to take less food, both in quality and quantity, during this time. Only when the baby suddenly becomes ill do we realize our error. It is impossible to give a general rule, but we ought to treat an infant much as we would like to be treated with respect to summer food.

As far as possible, children ought to spend the summer in the country, but the great majority in our large cities must still endure, as best they may, in their miserable homes. Here and there in New York a small breathing spot of a park has been opened in the midst of many acres of stifling tenements. The little done only emphasizes the need of more. Recreation piers have also afforded some slight relief, and we are even making through the Tenement House Commission a little attempt to strike at the root of the evil by reforming the construction of the homes of the poor. The mind of the community is only slowly awakening to the needs of the children, but there are some hopeful signs of progress.

2. *Treatment.*—First of all, whatever the food the child has had, stop it. I am a thorough believer in the policy of "bold

starvation." I believe that in most severe cases we would do well to give nothing but water for twelve, twenty-four, or even forty-eight hours.

When feeding is begun, it is best to use some liquid food which can leave no irritating residue in the stomach or intestine. For this purpose such preparations as rice- or barley-water, or whey, etc., are of service. Even these should be given in small quantities and at definite intervals. During the early days there is much more danger of feeding too much than too little. Only when the acute symptoms have subsided and there is a decided improvement, marked by lessened temperature and a gain in strength, is it proper to begin again the giving of milk. This should be given only in very dilute form and in small quantities at first. There is no more difficult problem in infant feeding than that of giving milk to an infant just recovering from diarrhea. With very young infants the milk should be diluted till both fats and proteids are one per cent or less, while four or five per cent sugar may be given. The strength of the food can be increased gradually as improvement occurs. If the administration of milk brings an increase of the fever or diarrhea, it should be diluted still further or discontinued for a time. All the milk given should be either Pasteurized or sterilized.

In the beginning of treatment, after having stopped feeding, the alimentary tract should be cleared out thoroughly. This can be accomplished by washing out the stomach, giving calomel in small doses (gr. $\frac{1}{10}$ every hour for eight or ten doses) to empty the small intestine, and employing rectal irrigation to serve the same purpose in the colon. If vomiting persists after this initial clearing, the stomach washing may be repeated, but as a rule this is not required. The irrigation of the colon should be repeated two or three times a day, so long as fever continues. If water, or better, salt solution at a temperature of 85° to 90°, be used, the irrigation will have a favorable influence not only by reason of its cleansing effect, but by reducing the temperature. Care should be exercised in employing irrigation not to make the water so cold or the process so prolonged as to produce marked depression. Unless a competent nurse can be secured, the irrigation should be done under the personal supervision of the physician.

If the temperature is very high, either sponge or tub baths should be regularly employed for its control. The temperature of the bath should be the same as for the irrigation. The time should not exceed ten or fifteen minutes, and, as with irrigation, care should be taken not to produce too great depression. Whiskey or brandy, well diluted, should be given either with the bath or immediately after it to prevent this.

Apart from its use with the bath, alcohol in either of the above forms should be regularly given in all cases of marked prostration. It should be diluted from six to eight times and given in small doses frequently repeated. In these diarrheal diseases of infants it is as much our mainstay for systemic stimulation as in the typhoid fever of adults. There is no adequate substitute.

The only other medication which can be unreservedly commended is the use of bismuth in large doses, ten grains every two hours. The familiar subnitrate is as good a preparation as any. To overcome the difficulty of giving such a bulky powder to an infant, it is best to suspend it in mucilage.

To recapitulate the points of importance. We are dealing with an acute inflammation of the gastrointestinal tract, accompanied by more or less systemic infection produced by the presence and activity of bacteria. We aim to treat the inflammation by rest. Rest is secured by first withholding food, washing the stomach, emptying the small intestine by medication, and irrigating the colon. Then for a time we give foods that will leave little or no residue, and only very gradually and carefully return to the use of milk. Further, we endeavor to limit the action of bacteria in the intestine by the internal administration of bismuth and the systematic use of irrigation of the colon. Finally, we counteract the systemic infection by the use of cold baths and the administration of alcohol.

Recognizing the influence of high temperature and foul air in the production and maintenance of these summer diarrheas, certain of our charitable organizations have sought to give relief to the little patients by providing hospital boats on which they may be carried from the heated air of the city to cool breezes of the sea, while at the same time they receive the attentions of skilled physicians and nurses. Lately seaside hospitals have been added for the reception and care of the more desperate cases. The results thus far have been most gratifying and serve to indicate still more emphatically the need of improvement in the surroundings of the poor at home.

A PRELIMINARY NOTE ON THE USE OF ASPARAGUS AS A DIURETIC.

By H. A. Hare, M.D.,
Professor of Therapeutics in the Jefferson Medical College, Philadelphia.

The well known fact that asparagus tops when they are eaten usually produce free diuresis would indicate that the plant might be used as a diuretic in cases in which the urinary flow is scanty. I am well aware that in so using it I have by no means done anything original, but a somewhat intimate acquaintance with therapeutic literature and practice has not brought me in contact with its employment. At the time I began using this plant for the purpose named, it was not possible for me to obtain a fluid extract made from asparagus tops, but Parke, Davis & Company placed in my hands a fluid extract made from the root stalk, and it is with this preparation that the tests here recorded have been made. The same firm has kindly made an extract from the tops, which I am at present testing.

The first case in which I tried the drug was that of M. C., a man of thirty-five years, who was suffering from cirrhosis of the liver with swelling of the ankles and legs, and secondary gastric disorder with nausea. A month before he came under my care he noticed that his abdomen was beginning to swell, and he had a "smothered sensation" when lying down, probably due to the ascites. An examination of his urine revealed marked albuminuria, the albumin being "one-third," but no sugar. The microscopic examination was practically negative. Under careful treatment with rest in bed the edema became much improved, but after reaching a certain point no gain was made. The urine being measured every day, it was found that the daily amount varied from thirty-five to forty-eight ounces during a period of fifteen days. On the sixteenth day a drachm of the fluid extract of asparagus three times a day was administered. In the next twenty-four hours the daily amount of urine rose from thirty-nine to sixty-two ounces, and five days later reached seventy ounces and remained almost as profuse as this, varying from fifty-five to sixty-five ounces for the next twelve days, after which time the drug was stopped, with the result that the quantity of urine gradually fell to between thirty-five and forty-five ounces in the twenty-four hours. After a lapse of nine days the asparagus was given a second time, and the quantity of urine at once rose in the first twenty-four hours from forty to forty-five ounces, then to fifty ounces, and then to sixty-three ounces. The quantity remained at from sixty-three to fifty ounces for one month, during which time the drug was continued. It was again stopped, and as before the quantity of urine fell in four days to forty ounces. Under the treatment the dropsical symptoms disappeared.

In another case under observation a shorter time, the condition being one of disordered digestion and marked edema of the legs resulting from a double mitral lesion, and in which only twenty to twenty-five ounces of urine was passed in twenty-four hours, the use of digitalis with bitartrate of potassium failed to produce any diuretic influence. The bitartrate was then replaced with infusion of juniper berries and acetate of potassium, a pint a day, without effect. Fluid extract of asparagus was then given, and the urine in the course of three days rose from twenty-seven to forty ounces, and remained at thirty-five to forty ounces while the drug was continued. In a case of advanced atheroma with aortitis and probably fatty heart, no marked effect was produced by the asparagus.

THERAPEUTICS OF SUMMER DIARRHEA.

By C. G. Jennings, M.D.,
Detroit, Michigan.

The preventive treatment of the summer diarrhea of infants demands the most careful supervision of the diet and the whole hygienic influences surrounding the child during the hot months. As Seibert, of New York, has observed, summer diarrhea becomes epidemic whenever the average minimum temperature reaches 60° F. During the colder months even badly fed city infants do not suffer seriously from diarrheal diseases. They may suffer from malnutrition and continuous indigestion, but diarrhea does not frequently menace their lives. It is the summer heat that is the important etiological factor in the production of summer diarrhea. The high atmospheric temperature acts to produce diarrhea, first, by debilitating the infant's digestion and general nutrition, and secondly, by favoring decomposition in the infant's food. Nursing infants escape because they are, as a rule, well nourished and resistant, and because their food is easily digested and is sterile. Artificially fed infants, as a rule, habitually digest badly and

only exceptionally are perfectly nourished, and their food is digested with difficulty and frequently infected. The summer heat that diminishes still further their powers of resistance favors the growth of saprophytic and other microbes in the milk that is their food, and the higher the temperature the feebler their resistance, and the more rapid and toxic the milk decomposition.

The principles of the prevention of summer diarrhea are to keep the infant's nutrition and digestion up to the highest possible standard, and to administer during the heated term a sterile food so modified as to suit the enfeebled infant's digestion.

Whenever possible artificially fed infants should spend the summer in the country, away from the overheated and microbe-laden city air. When compelled to remain in the city, they should have all the out-of-door air possible. A few hours each day under the trees, in shady streets or parks, will do much to improve their condition. Their clothing should be suited to the temperature. When this approaches 90°, a single light garment, with additional abdominal covering, will keep them comfortable. Frequent tepid bathing is of the greatest value. During the heated part of the day older infants and children may be given a tepid or cool tub. They may be allowed to paddle in the water for one-half hour or more, and the bath may be repeated in the evening should the heat continue. Cool sponging is often better for very young and feeble infants. The tonic and refreshing influence of a cool bath on a hot day is familiar to all.

The details of domiciliary hygiene are not always under the control of the physician, but he should do his best to improve them. Perfect cleanliness of the infant and its surroundings is of the greatest importance, and the most exquisite care of the food and fooa utensils is essential. During the hot months milk given to infants should be sterilized by boiling for from fifteen to twenty minutes. With a remote milk supply, Pasteurization cannot be depended upon. Whatever objections there may be to sterilized milk are outweighed by safety from infection that sterilization brings. In the country, or where milk can be obtained within an hour or two of the milking, one meal of fresh milk may be given. The milk for all other meals should be sterilized.

Clinical experience has confirmed the teaching of a number of authorities that one of the cereals added to an infant's milk will frequently aid its digestion, and infants during the latter six months of the first year will often show improvement in their digestion and nutrition when a small quantity of a thoroughly cooked cereal is added to their food. Barley-water, oatmeal-water, thin arrowroot gruel are accessible in all homes and are useful diluents. In exceptional and difficult cases one of the farinaceous patent foods of the market may serve where home products fail, and in others a good Liebig's food with the starch transformed into dextrin and maltose may serve an excellent purpose.

The summer diarrhea of infants is an acute gastroenteric infection—acute milk infection. The symptoms are due to the absorption of poisons generated in the stomach and intestine by putrefactive decomposition of their contents. This condition is a frequent sequel to an attack of acute indigestion. In certain cases the intensity and duration of the poisoning develop structural changes in the ileum and colon. The case becomes an enterocolitis. In others the toxemia is profound. The heart, the nerve centers, and the vasomotor nerves suffer severely from the intoxication, and the clinical picture is one of cholera infantum.

Summer diarrhea being then a gastroenteric intoxication, the indications for treatment are: first, to remove as quickly as possible the toxic materials from the alimentary tract; secondly, by appropriate dietetic and medicinal means to limit further elaboration of poisons; thirdly, to combat the symptoms resulting from the intestinal intoxication.

As in the treatment of every intoxication due to the absorption of the products of decomposition from one of the cavities of the body, promptness and thoroughness of action are essential. Immediately upon the development of symptoms of gastroenteric infection, vigorous eliminative treatment should be begun. To delay is to risk the development of an uncontrollable toxemia or the onset of grave anatomical changes in the intestine. Every acute indigestion in an infant during the hot months should receive prompt attention. The habit of looking lightly upon an apparently mild indigestion diarrhea cannot be too strongly condemned.

The first indication is to empty as quickly as possible the stomach and bowels. The colon should be irrigated every two to four hours until the whole of the intestinal tract is emptied. In the beginning of the attack

the stomach also may be washed out, although this measure is not so often necessary. With the irrigation of the intestine a cathartic dose of calomel and soda may be given—one-tenth grain of calomel with one-half grain bicarbonate of sodium every hour for five doses. For intestinal irrigation warm normal saline solution is best; it is non-irritating, and being quickly absorbed from the bowel adds to the circulation the fluid that should be taken up from the stomach. When fever is high, the temperature of normal saline may be reduced to 95° or 90°.

Administration of food by the stomach should be stopped at once, and no food should be given for from twelve to twenty-four hours, or until there is a decided improvement in the intestinal symptoms. Mothers object to this rigorous treatment, but it is essential to a perfect success.

When the stomach will retain it, water should be given freely. After the first twenty-four hours, careful feeding may be begun. Milk should not be given until the child is well on the road to recovery; in the place of milk, a thin cereal gruel, diluted beef juice, whey, a thin solution of one of the malted foods, delicate beef, chicken, or mutton broth. Food should be administered in small quantities frequently—one or two ounces every two hours. In feeble children and in cases showing severe toxic prostration, the addition of two to three drachms of whiskey or brandy in the twenty-four hours acts well. As the condition improves, milk may gradually be added to the food. It should be given at first plain, diluted five to six times with a four-per-cent solution of milk-sugar. By this dilution is made a mixture low in fats and proteids, but containing about four per cent of carbohydrates. Medicines for the control of the diarrhea are of secondary importance. After the bowels have been thoroughly emptied—*not before*—and particularly if there be pain and tenesmus, opium carefully given is of great benefit. A child of one year may be given ten drops of paregoric or one drop of chlor anodyne after each movement. By this means as the movements diminish in number the opium is decreased. The opium always should be given alone. When symptoms of lower bowel irritation are prominent, a starch enema containing two to six drops of laudanum is an efficient measure; it may be given after each movement. Internal intestinal antiseptics are disappointing, although occasionally they may do good. Bismuth subnitrate in full doses, ten to fifteen grains, suspended in an aromatic water, may be given every two hours. To this may be added, when evidences of fermentation continue, half a grain of either carbonate of guaiacol or salol.

In many cases grave toxic symptoms are prominent. The temperature rises to 104° or 105°, the child is restless, drowsy, often comatose, and there are all the indications of a profound toxemia. For these symptoms, no measure with which the writer is acquainted is so efficient as the bath. In young, feeble, and prostrated infants the temperature of the water at the beginning of the bath should be about 100°. It may be gradually cooled during the course of from eight to ten minutes to 90° or even 85°. The effect of such a bath upon these children is often magical, and before the bath is ended they will arouse from their stupor and begin to play in the water as they are accustomed to do when well. The bath may be repeated every two, four, or six hours, depending upon the range of temperature and the intensity of other toxic phenomena. With the thorough use of water internally and externally, opium and other sedative and astringent drugs will rarely be necessary.

As convalescence is established the greatest care is necessary in the adjustment of the food to suit the gradually strengthening digestive power of the infant. Its appetite is frequently far beyond its power to digest, and the mother must be most carefully instructed as to the quantity and quality of the food. Relapse must be carefully guarded against, and the occasional administration of a gentle laxative like calomel will be most efficient in preventing it.

RUPTURE OF THE POPLITEAL ARTERY.

MEYER (*Deutsche Zeitschrift für Chirurgie*, 51 Bd., 3 u. 4 Heft, Leipzig, Vogel, April, 1899) reports a case of subcutaneous rupture of the popliteal artery, which was accompanied by neither swelling nor tension of any kind in the popliteal region. The diagnosis was made only when gangrene of the foot developed. It follows from this that whenever an injury has been inflicted in the popliteal space pulsation of the tibial artery should be felt for. In case this is absent, and especially if anesthesia and subnormal temperature develop in the foot, the proper therapeutic measures should be taken before gangrene develops.

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Leading Articles.

COLLATERAL TREATMENT DURING THE ADMINISTRATION OF THYROID EXTRACT.

It is a well known fact to those who have used thyroid gland in the treatment of the various pathological conditions which indicate its use, that it is a substance capable of producing, when given in fairly large doses, very distinct evidences of its physiological activity, represented chiefly by exaggeration of the heart's action, irregularity of the pulse, and other circulatory symptoms, which are not only disagreeable to the patient but are actually capable of serious consequences. At the same time, under its influence, there is usually, it is claimed, an increase in the oxidation process in the body, and it is supposed that by this means thyroid medication does good in obesity. In some instances in which the administration of the gland is followed by excellent results, we are prevented from administering it in large quantities by reason of these symptoms, therefore we regard with interest a communication recently made by Mabille in *Les Nouveaux Remèdes* of May 8, 1899. This author asserts that he has used arsenical preparations for the purpose of antagonizing thyroidal intoxication with excellent results, and he believes that these results are obtained through the energetic restraining influences of arsenic upon oxidation processes, and that this administration also diminishes the palpitation of the heart without in any way interfering with the other good influences of the thyroid gland. Before trying the arsenic clinically Mabille carried out a series of experiments upon dogs and rabbits, administering to them thyroid gland and Fowler's solution. He found that his theoretical views were supported by these experiments, and when he tried them clinically he also found good results; or, in other words, that he was enabled to push the thyroid gland in ascending doses more rapidly and with better effect when arsenic was given than without it.

It seems to us that this is an interesting field for clinical research, and we hope that Mabille's experiments may be tested and found correct.

TREATMENT OF SURGICAL SHOCK.

We have from time to time pointed out in the pages of the THERAPEUTIC GAZETTE the necessity of considering the condition of the vasomotor system in the treatment of diseases, and we constantly state to our classes that in the treatment of surgical shock, or collapse occurring during the course of non-surgical diseases, it is of vital importance not only that we stimulate the heart, but also that we maintain arterial tension, directing our attention to the condition of the vasomotor center and the blood-vessels which it supplies. We believe that many of the fatalities of disease are due to this condition of vasomotor relaxation, and therefore we have read with much interest the results obtained by Crile, of Cleveland, in certain experiments which he has recently made in regard to the pathology of surgical shock. This vasomotor effect is probably the reason why Crile has found that operations upon the abdominal area and the regions of the duodenum, pylorus, and gall-bladder are the most apt to produce this condition, since the vascular system of this neighborhood is capable of containing all the blood in the body.

One of the most important results of this research is the indication that surgical shock is mainly due to the impairment of activity of the vasomotor mechanism. Crile's research

therefore confirms the views we have already named, and those which have been so ably advanced by Mr. Leonard Hill, of England. It seems to us, too, that these studies do much towards supporting the views we have already expressed concerning the influence of chloroform in producing death by vasomotor paralysis.

THE ERUPTION PRODUCED BY THE BROMIDES AND IODIDES.

We have called attention a number of times in the editorial pages of the THERAPEUTIC GAZETTE to the fact that these two classes of drugs, and quinine, are substances capable of producing very curious alterations in the nutrition of the skin, and apropos of these remarks our attention has been called to an article in *La Presse Médicale* of May 24, 1899, by Malherbe, of Nantes. He reports an instance of bromide eruption which occurred in a young girl of twenty-one years, who was suffering from epilepsy. Her hereditary antecedents consisted of alcoholism on the part of her father, who however denied syphilis; the mother was neurotic, but otherwise presented no distinct pathological conditions. On the 15th of March, 1898, she consulted Malherbe for the first time, having developed a very large ulcer during the previous three months on the lower portion of the left leg; within the previous three days she had also developed a profuse acne eruption of the face. So intense were the lesions that it was at first supposed to be due to syphilitic manifestation, but this possible diagnosis was speedily given up.

The treatment consisted in the suppression of the bromide, the use of arsenical waters, with a milk diet, and, locally, a poultice made of potato to which had been added boric acid. The eruption speedily disappeared under this treatment, so that within a few weeks nothing was left in the area which had been involved save a brown pigment spot. The stopping of the bromide, however, resulted in the return of the epileptic manifestations.

Another case was that of a patient of forty-five years, who was receiving doses of iodide of potassium because of asthma and pulmonary emphysema, and who had never suffered from any syphilitic manifestations. This patient developed upon his right shin a patch of local gangrene of considerable size. Here, again, the diagnosis of the cause of the condition was at first obscure, but that it was due to the iodide seems to be proved by reason of the fact that as soon as this drug was stopped and the gangrenous spot locally treated healing speedily took place.

Treatment in this case consisted in the arrest of the iodide of potassium, washing the spot with hot borated water, and using an ointment composed of:

Oxide of zinc, 15 grains;
Salol, 30 grains;
Vaselin, 1 ounce;

associated with absolute rest and a milk diet. Somewhat similar cases to this have been reported by Gemy in 1891 and by Panichi in 1897.

THE EFFECT OF THE ENTRANCE OF AIR INTO THE VEINS.

The original and editorial pages of the GAZETTE have contained from time to time during the last twelve years papers in regard to this very interesting subject. The general trend of literature has seemed to indicate that air embolism is by no means as dangerous a condition as our forefathers considered it, and also that in a certain number of cases where it was supposed to have occurred, the presence of bubbles in the cardiac cavities and elsewhere was really due to the development of gas produced by the bacillus *Aerogenes Capsulatus*. Still more recently the *Centralblatt für Chirurgie*, No. 11, 1899, has contained an article by Sternberg, in which he details two cases where air entered the veins and gained access to the heart during operations for the removal of tumors about the clavicle.

In the first instance a woman aged sixty-one years, with normal lungs and heart, was operated upon for malignant adenoma of the right lobe of the thyroid, when a short, loud, wheezing sound was heard, and a very loud gurgle accompanied each heart sound; the respirations became superficial and the pulse slow, but there were no further bad symptoms and the patient soon recovered. The cardiac gurgling sound ceased in a few minutes. The cause of the entrance of air was the tearing of the external jugular vein. Death occurred from pneumonia on the fifteenth day.

The other case was a woman of fifty-five, who was being operated upon for an adenoma of the right lobe of the thyroid, when a rhythmical, gentle, sucking sound was heard; symptoms of syncope came on, the heart beat loudly against the chest, and a loud gurgling

sound was heard, while the normal sounds were absent. This sound was so loud that it could be heard by bystanders. In this case artificial respiration, faradization, and massage of the heart were tried, and complete recovery ultimately ensued.

The writer of this editorial has in a number of instances seen air accidentally introduced into the veins of human beings with no evil effects ensuing.

THE SURGICAL TREATMENT OF EPILEPSY.

Theodor Kocher (*Archiv für Klinische Chirurgie*, 1899) read before the twenty-eighth meeting of the German Surgical Society an extremely suggestive paper upon the operative treatment of epilepsy. He stated that the general feeling of the profession at present in regard to the hope of cure held out by operation in cases of epilepsy was distinctly pessimistic.

While in the early period of what might be called the operative fervor statistics seemed to prove that from sixty to seventy per cent of cases were cured, it has been conclusively shown in later times, and particularly by the tabulations of Graf and Braun, that the number of cases which remain well for more than three years ranges between two and four per cent.

The question is naturally suggested as to whether better results would not be reached by an improvement in the method of operating. A decided advance in this direction was dependent on the suggestion of Hughlings Jackson, as to the advisability of excising a portion of the macroscopically unaltered cerebral cortex, that portion being selected for removal which presides over the motor or sensory functions of the portion of the body to which the ora are referred.

Bergmann records three cures out of twenty operations by this method, only two of which have remained well for three years. Kocher records eight cures lasting more than three years.

In analyzing his own cases and 175 others, collected for him by Schär, Kocher finds in the first place that intervention is successful from any form of operation which reaches and removes the cause of epilepsy. Of nineteen cases in which, by trephining, splinters of bone were found pressing on the dura, adhesions were freed, or abscesses were evacuated, there was improvement in nearly seventy per cent. The results were still more striking when the dura was found lacerated, with splinters of bone projecting into the brain. There was apparent cure in over eighty-five per cent of these cases. Similarly good results followed removal of tumors, whilst operations on cysts are less successful, about forty-eight per cent of these cases recovering. It is, however, evident that failure to cure a larger number of these latter cases is due to the cyst forming again.

In addition to these cases of epilepsy in which the cause can be reached and removed, there is another class of cases in which the affection is evidently due to either focal or general cerebral increase in blood-pressure. When cases of this nature are analyzed, it is found that the cures (meaning by this term freedom from return of epileptic attacks up to the time of reporting the case) are fourteen per cent when the dura is not opened, and fifty-eight per cent when the dura is opened. Hence, incision of the dura has a distinct and peculiar effect—indeed, one so marked that the query is suggested as to whether the dural opening is not a curative factor in the cases of excision of the cerebral cortex. The possibility of this being the case is strongly suggested by the cases of Schädel and Nancrede, in which cortical excision seemed to be indicated; yet because of failure to find the cortical center by electrical stimulation, or for other reason, the surgeons refrained from this extreme measure. None the less cure resulted.

Moreover, it is a matter of common observation that after removal of true causes the convulsions cease immediately, or very shortly, whilst after excision of apparently healthy cortical foci, the convulsions may remain unaltered or may even increase in violence. Finally, the statistics of cortical excision show that thirty-three per cent are cured immediately after the operation, while in sixty per cent failure is practically absolute. Statistics seem to show that the results are better when permanent palsy follows cortical excision than when crippling is of a temporary nature.

As to the effect of trephining and opening of the dura, this, Kocher holds, is due to the lessening of blood-pressure which results; the dural opening acting as a valve which quickly regulates changes in blood pressure.

In corroboration of this Schär and Beresowsky, who carefully examined the cases of the cured epilepsy, report that these cases all

show what Kocher calls a valve formation—that is, the membrane covering the trephine opening is perfectly soft and freely movable, sinking when blood-pressure is lowered, pushing outward when it is increased; while in cases which were not cured, the opening was entirely, or in great measure, closed either by bone or by scar tissue so dense as to be practically unyielding.

As a further proof of this, it is noteworthy that comparatively slight injuries to the skull are often followed by epilepsy, while this sequel is rare after severe injuries. Thus Kocher notes that in eighteen cases of complicated, depressed, and extensive skull fracture, there followed but one case of epilepsy. These cases have been under observation for over seven years. Beresowsky found, in the majority of these cases, that the defect was closed by soft tissue, allowing equalizing of pressure. This surgeon, as a result of laboratory study, finds that the dura has an important influence in the form of healing which takes place after trephining. When this membrane is unopened, its outer surface forms true bone, which unites with that forming the borders of the skull opening, and thus completely closes the defect. When the dura is wounded or excised, this bony formation does not take place; hence, when it is desired to form this pressure equalizer, the dura should be excised.

Many authors have urged the uselessness of excising scars which have caused epilepsy, rightly holding that the healing of the operative wound is necessarily attended by further scar formation. It is, however, noteworthy that scars in themselves are not adequate causes for the attacks. The epilepsy is particularly likely to follow such scars as result from severe inflammation, particularly that incident to infection. The aseptic scars, developing with very slight inflammatory phenomena, do not, as a rule, cause epilepsy.

Not only is this the case, but aseptic foreign bodies are not likely to cause these convulsive attacks. Ito conducted many experiments, introducing foreign bodies into the brain substance, and placing them beneath and above its membranes. These operations were conducted with aseptic precautions, and epilepsy did not develop; while Luciani, who operated without taking these precautions, caused epilepsy in nearly all the dogs upon which he operated. The epilepsy produced in guinea-pigs by repeated blows on the head with a hammer, but not applied with such force as to cause bleeding, was shown by Ito to be incident to very marked increase of intracranial pressure, this rising to from three to five times the normal. The epilepsy ceased, and pressure was relieved by trephining and opening the dura.

These data prove beyond controversy that an etiological factor in the development of epilepsy is increased intracranial pressure. Cysts play an important rôle as causes of traumatic epilepsy. A large proportion of cases of traumatic epilepsy, operated upon by Kocher, showed these cysts, which were either circumscribed and local or were extensive and communicated with the ventricles, forming traumatic porencephalus. It is evident that all causes, aside from trauma, which effect an increase in the fluid contents of the skull, such as inflammation and tumors, must predispose to epilepsy, since thus there results a marked variation from the normal pressure. In the case of cysts, it is noteworthy that not only those placed near the motor centers, but those in the posterior part of the brain or in the frontal lobes, may cause convulsions by a gentle increase of blood-pressure.

It is the consideration of such facts that leads Kocher strongly to urge that surgeons should always bear in mind the effects of local or general pressure in operating for epilepsy; even when adequate causes, such as bone splinters, thick cicatrices, or cysts, are found and are removed, the question of regulating the blood-pressure of regions other than that particularly affected, or of the entire encephalon, should be carefully considered. For the local regulation of pressure the removal of a piece of bone and the section of the dura corresponding to this bone button is adequate. Kocher uses a small trephine, then enlarges the opening with bone forceps. Afterwards he splits the dura by two incisions at right angles to each other and cuts away the four angles thus left.

For the regulation of the general intracranial pressure, Kocher suggests two methods. In the case of cyst, or of fluid accumulation of the ventricles, he employs drainage, which must be continued for one or more years. A fine silver tube is secured in the opening and is protected by a simple dressing; or the same end may, perhaps, be secured by making very large openings in the skull, the portion of the dura corresponding to the bony defect being removed. Extensive bone defects in themselves, however, sometimes cause epilepsy, which is cured by plastic operation. These convulsions are due to

too marked a change in the blood pressure; hence, for lowering of the general pressure Kocher suggests the formation of repeated multiple valves such as are observed in the skulls of the people of the stone age. The openings may be formed under cocaine anesthesia, using drills to penetrate the bone, and a fine cannula by means of which drainage may be secured.

Kocher holds that increased intracranial pressure is the unknown factor which is commonly called status epilepticus, this condition being necessary to the outbreak of the affection, and being sometimes inherited, sometimes due to exciting causes such as inflammation, tumors, or trauma. This condition may be remedied both by surgical and medical means.

A most important conclusion from this study is to the effect that epilepsy is frequently due not to the opening of the skull from trauma, but to the closure of the same by the surgeon.

Gussenbauer, in commenting on Kocher's paper, calls attention to the fact that both excision of cicatrices and osteo-plastic operation with replacement of the bone at the time cure epilepsy.

Bergmann notes that there is customarily a hereditary condition of the nervous system, which predisposes to the development of epilepsy, this condition being especially likely to become manifest in the children of alcoholic parents. Thus, cases should only be termed traumatic in which this hereditary tendency is observed.

The tendency towards spasms may be influenced by lessening of pressure, by valve formation (as indicated by Kocher), or by section of the sympathetic, a recent procedure which seems to be attended with a measure of success. Removal of the direct cause of epilepsy is, however, always the most important indication in the surgical treatment of this disease. When this can be found and remedied, the results are extremely good, even when the status epilepticus has been reached; recurrence will, however, occur even after four years, as in the case observed by Bergmann.

As somewhat corroborating Kocher's theory, Bergmann reports the case of a child suffering from a porencephalic cyst, originating from trauma at birth. There was unilateral spastic palsy. The intelligence was blunted, and there were epileptic seizures. There was a defect in the skull, over which usually the skin was depressed. During the epileptic attacks the skin covering this defect became prominent. Bergmann has closed the greater part of this defect by plastic operation. None the less, the opening still exists, acting no doubt as a valve. The epileptic attacks have ceased, probably because of the drainage continued for several months.

A theory, based on clinical observation, and one which appeals to the common sense, is always helpful to the surgeon who has to decide for or against operation. The theory of Bergmann is likely to produce renewed activity in the field of operative treatment for epilepsy, and, it is to be hoped, better results than have hitherto characterized efforts in this direction.

Reports on Therapeutic Progress

DIPHTHERIA AND INTUBATION.

The *Annals of Gynecology and Pediatry* for April, 1899, expresses the belief, editorially, that intubation has been proven by multitudes of cases, reported and unreported, to be far more generally useful than tracheotomy. Fortunately the introduction of antitoxin makes the need of operative interference much less common than a few years ago. Yet there are occasional cases of dyspnea resulting from the obstruction of diphtheritic laryngitis where the attending physician must do something at once or the little patient will die.

Bokai's experience, that more than twice as many patients can be saved with intubation as with tracheotomy, together with the fact that the former operation causes less shock, is more quickly performed, needs less preparation and fewer assistants, has led him to give it the preference. He merely insists, however, that the patient must have continuous skilled attention while the tube remains in place. This would seriously limit the usefulness of the procedure in private practice were it not for the help of antitoxin. For we believe we may take it for granted that in hospitals everywhere, on this side of the water at least, intubation is preferred.

But if we accept the dictum that skilled attendance must be at hand in every case, the element of time becomes at once of great importance. Hence we note with interest that nearly sixty per cent of Dr. Bokai's recoveries were extubated within forty-eight hours, since he has been able to supplement the operation by antitoxin.

Of course in the cities, except in the case of the most wealthy, who can afford to pay for all needed skilled attention, such "chokers" are far safer in the hospitals. But cases of this sort do occur in the country and at a distance from the physician. It is then that the country physicians, who constitute a large part of our readers, must use that faculty almost always so well developed in them, common sense. Presupposing that the physician has the needed instruments and experience, he must consider many elements. Is the case so urgent that he dare not rely simply on antitoxin? Can he arrange to be within short calling distance for forty-eight hours? Is there at hand a reliable nurse who will do as directed and not as the child desires? Shall he have the silk attached to the tube? Fortunately in these days the question of operation for euthanasia is rarely raised. Yet even that may occur.

If he decides that under the circumstances tracheotomy is the only operation permissible, there still remains the question as to whether he shall do a preliminary intubation. There can be no doubt that it is easier to open the trachea of an intubated child than that of a child who is choking and laboring for breath, terrified and struggling, the trachea pulled now this way and now that. But the preliminary operation takes time and skill.

The two great objections to intubation are that it may cause greater obstruction by loosening membrane and pushing it down, and that serious difficulties may follow. They must not be forgotten as possibilities, and must be guarded against as indicated so far as possible.

Intubation for non-diphtheritic stenosis will not occur in the practice of most of us. Yet, if it ever does present itself as a solution to the problem before us, we may profitably remember that it has been successful in many cases and is relatively safe and simple.

The papers of Bokai, as to the value of antitoxin, are one more strong testimonial to the great efficiency of that remedy in combating what a few years ago was the most dreadful and most dreaded disease of childhood.

A CONTRIBUTION TO THE STUDY OF ALBUMINURIA AFTER ETHER NARCOSIS.

The *Annals of Gynecology and Pediatry* for April, 1899, has an article with this heading, in which POPOFF tells us of his researches in this line of investigation. In order to study the question a little more closely some researches were undertaken on the urine of 140 patients in the surgical clinic of the University of Geneva. He employed first reagents for all the urine examined, heat and nitric acid, Esbach's picric acid reagent, and when he found albumin before narcosis he controlled its reaction by acetic acid and ferrocyanide of potassium.

He did not use the centrifugal apparatus for the urine in the microscopical examination, as he only examined the deposits that formed at the bottom of the glass, and these were filtered before examination when necessary. The researches were carried out on the urine of 117 males and 23 females, the urine being from children, adults, and old people, varying in age from ten to seventy years. He only selected patients who were examined for any disease of the internal or external genital organs, and also left aside any urine that was purulent or appeared to be. He examined relatively few women in order to avoid the dangers of error from menstruation, leucocytes, etc. The first urine voided after operation was examined.

Of the 140 examinations, fourteen did not urinate before anesthesia; fourteen presented albumin afterwards where there was none before the administration of ether, and in 112 it was absent both before and after etherization. The fourteen cases of albuminuria before narcosis suffered from varicose ulcers, three from cold abscesses, two from fractures of the hip, one from necrosis, and three from lipoma. Of these fourteen patients ten had Bright's disease, viz., the four cases of varicose ulcers, two cases of cold abscess, two fractures of the hip, and three lipoma. The four others presented amyloid degeneration of the kidneys, this being present in the three cases of cold abscess and in the case of necrosis.

In all these cases Popoff measured the quantity of albumin ten days after the operation, and in one twenty-four days afterwards—that is to say, at the time when the patient left the hospital.

In the fourteen cases where albumin was entirely absent before operation and where it was found in traces after it, it completely disappeared in eight cases the day following the operation, and in the six other cases where it was in such minute quantity that it could not be established the first day after the operation or on the day itself, it had disappeared by the third day. In two other cases the

presence of albumin taken the first day after the operation was fifty centigrammes to the liter, and the second day it could no longer be established; the third day there were still traces, and on the fourth day it had completely disappeared. In another case it was present in traces and had entirely disappeared on the sixth day following the operation. Albumin was constantly present in ten per cent of the cases. Microscopically were found, first, epithelial cells coming from the urethra, bladder, and vagina; secondly, leucocytes, which were more numerous after the etherization. It is difficult to say whether they came from the urethra, bladder, or kidney. Wunderlich, however, believed that they came from the urethra. Thirdly, red blood-corpuscles were found in four ceses after narcosis, and in three of six cases were found hemorrhagic casts; fourthly, biliary pigment in only one case; fifthly, indican once; sixthly, crystals of oxalate of lime, uric acid, and urates; seventhly, hyaline, epithelial, granular, and hemorrhagic casts. He never was able to detect the presence of sugar after etherization.

After this study the following conclusions are formulated: First, in the subjects examined in this study, whether afflicted with Bright's disease or not, he never was able to notice any harm done to the general health after narcosis with ether; secondly, a persistent albuminuria will often be increased by the use of ether; thirdly, an ether narcosis may produce an albuminuria, but it is always transient; fourthly, ether may produce casts; fifthly, if casts are present before ether is given, they are increased in number after etherization.

According to Dr. Popoff's personal researches and Wunderlich's work, he says he cannot admit that the albuminuria produced by ether is due to a nephritis, and he believes that it is caused by the physiological action of ether on the blood-pressure.

Now how do ether and chloroform act on the heart? Lenz, Brunner, and Gall remarked that there was a diminution in the blood-pressure when chloroform was given. The blood-pressure increases in the large arteries at the beginning of anesthesia, and often later on becomes lowered. Scheinson also found that there was a decrease of blood-pressure in his experiments on animals, but he did not note any elevation at the beginning of the administration of the anesthetic. This decrease of pressure may be produced by a diminution of the tonus of the arteries, either from a paralysis of the vasomotor system, or from a decrease in the cardiac impulse, or both these causes may be united. Scheinson found the same phenomena in rabbits' ears during the administration of chloroform that Claude Bernard found after section of the sympatheticus in the neck—that is to say, a dilatation of the vessel on account of the action of the vasomotors of the bulb. He noticed that chloroform acted directly on the cardiac muscle by diminishing its activity, and that it diminishes arterial pressure and slows the circulation of blood as well.

Now how does ether act? Gall performed comparative experiments on the action of chloroform and ether as regards the blood-pressure; he showed that the decrease is less marked and less rapid with ether—127 millimeters of mercury with ether and 36 millimeters of mercury with chloroform. The English commission on chloroform which acted in 1863 proved the same thing. At the beginning there was an increase in the heart's action which was longer and more durable with ether than with chloroform, and then there was a depression which was less marked with ether than with chloroform.

Schiff believes that the decrease of blood-pressure produced by ether is due to a paralysis of the peripheral nerves of the blood-vessels. Knoll found in many experiments that ether diminished the cardiac force by a lessened tension in the vessels, and many others have come to the same conclusion.

ICE OR HEAT AS A LOCAL APPLICATION?

EWART, of London, in *The Lancet* of April 8, 1899, after a somewhat exhaustive paper on this subject sums up his views as follows: The value of cold as a means of subduing pain and checking inflammation has long been known, but its popularity as a therapeutic agent seems to have fluctuated. Among its most strenuous advocates within modern times have been James Arnott and Professor Esmarch. A summary of Arnott's views will be found in his "Contributions to Practical Medicine and Surgery" (London, 1864). Professor Esmarch's work on "The Use of Cold in Surgery" should be consulted by those interested in the subject. The greater part of his treatise is devoted to the surgical aspects of the treatment by cold, in which he expresses strong belief. He gives illustrations of various shapes of the ice-bag for the limbs, etc., but he had also found good re-

sults from its application to acute rheumatic joints and to the pericardium, and he gives the notes of three cases of acute rheumatism treated in that way. Arnott was not content with ice, but he produced congelation of the surface by a freezing mixture of two parts of ice and one of salt, and found this application, the duration of which was rarely more and sometimes less than five minutes, to be an unfailing means of arresting the pain of sciatica, of neuralgia, and of lumbago. He does not appear to have treated cases of rheumatoid arthritis, but he had tried it in chronic rheumatism with rather less striking results: "An anesthetic temperature will not always be so speedily curative as in the instances of lumbago which have been related." In lumbago he seems to have obtained immediate and permanent improvement analogous to that which he had noticed in the neuralgic cases. The complications which must have occasionally resulted from the local congelation sufficiently explain the neglect which has overtaken the method. Ice-massage is a much milder proceeding, free from danger, and it would seem equally efficacious. It is interesting to note that Arnott's method has recently been revived for the cure of some laryngeal affections. Abrams reports in the THERAPEUTIC GAZETTE the immediate cure of functional aphonia by freezing the skin with the methyl chloride spray over the spot where the superior laryngeal nerve sends its internal branch into the larynx. In some cases he has had to repeat the process. In other neuroses of the larynx, such as laryngismus stridulus, spastic aphonia, and the laryngeal crises of tabes, he has found it of value. He also refers to its efficacy in neuralgia and in peripheral neuritis, and to the linear applications of extreme cold practiced in France under the name of "stypage" for the relief of neuralgia.

Dr. Ewart has had experience of the value of ice-massage as a means of relieving the severe pleuritic pain which commonly accompanies acute pneumonia of the base. The results were encouraging. In the two patients treated the relief of the pain was immediate and the application was welcomed as a comfort. The relief in one of the cases lasted for several hours, but it was not permanent. This suggests that the frequency of applications might be arranged to suit each case.

Although dealing with the local effects of cold this communication would not be complete without a reference to another mode of application successfully employed by Dr. Beverly Oliver Kinnear, of New York. Dr. Kinnear has recorded remarkable results from the systematic use of the spinal ice-bag in chronic rheumatism, and in lumbago both chronic and acute, and he has found the same method of great benefit in various other affections.

THE ABDOMINAL BANDAGE IN THE TREATMENT OF ENTEROPTOSIS.

A. K. STONE, in the *Boston Medical and Surgical Journal* of May 11, 1899, reminds us that at the conclusion of a paper entitled "Enteroptosis as a Clinical Factor in the Diseases of Women," read in the spring of 1897, he stated that he had not settled to his own satisfaction what was the simplest and best form of abdominal bandage to use in the treatment of this condition. Although he has given the subject much consideration, he says he does not feel sure that he is much nearer the settlement of the problem than he was then; still he thinks he has made out some of the conditions that must be complied with in order to have any success whatsoever in the use of the bandage.

Looking over the bandages to be found in the market, the first thing that strikes one is that they are all made so as to conform to the soft portion of the abdomen — that is, they have a convex curve on the lower border. The result of this is that the bandage practically takes its real lower bearings over the anterior superior spines and the crests of the ilia. This tight band, crossing about midway between the umbilicus and the pubes in many cases, allows the prolapsed intestine to get down into the lower part of the abdomen, press down upon the pelvic floor, and protrude the lower abdominal wall; or, in other words, instead of relieving the enteroptosis the bandage intensifies it. This takes place whether or not there are perineal straps. And this is why so many cases are unrelieved or made worse, when they are simply ordered to go to the instrument-makers and get an abdominal bandage.

Where there is no great prolapse of the pelvic floor, and where the abdominal walls are specially fat and heavy, such bandages give relief, but not where there is true enteroptosis and prolapse of the pelvic organs. To help this condition, the pressure must be so applied that it will be greatest immediately above the pubes. Therefore the lowest and tightest part of the bandage must pass di-

rectly round the body at the pubes, which will make the bearing to be taken just above the trochanters and below the crests of the ilia, and will bring the buckle in the back at the end of the sacrum or the very beginning of the natal fold. At first glance this seems very low, as if it might interfere with locomotion, but a short time given to observing the corsets exposed for sale in shop windows will show that many of them come fully as low as this and occasion no inconvenience. In fact, Dr. Stone says he has never had patients complain of this low bearing of the bandage. What does cause complaint, and is really very disagreeable, especially in hot weather, is the perineal band, which must be worn in practically all cases, so as to keep the bandage in place.

Glénard, who first called particular attention to the condition of enteroptosis, used for his bandage a broad band of elastic webbing with straps at the back and perineal bands, insisting that the elasticity was very necessary for good results. With this opinion Dr. Stone agrees, but does not think it necessary that the whole bandage should be elastic, but only so much as to allow freedom of motion. He has found that however thoroughly and well explanations may have been given, it will be necessary to see the patient a number of times and see the bandage in working position in order to get an idea of the faults and the changes which are necessary to put the bandage in condition to do satisfactory work. In fact, it is necessary to treat the bandage with as much respect as, for example, the orthopedic surgeon bestows upon any of his pieces of apparatus, in order to obtain satisfactory results in the relief of enteroptosis.

Should it be necessary to get special pressure, as, for instance, beneath a floating kidney, Dr. Stone usually begins by using napkins and towels, until he finds where it is necessary to place the pressure and how much padding is required. When this has been pretty well determined, he has the patient or maker sew a pocket on the inner side of the bandage, with greater capacity at the lower part than at the top; this is then stuffed with upholsterer's curled hair and the upper part closed. Some cases require special devices for the support of peculiar internal conditions, and it often means very careful study of the case to determine just what form of support will give relief, but when once made out and the bandage properly applied the result will be worth the pains taken.

THE USE OF FORMALDEHYDE GAS AS A DISINFECTANT FOR DWELLINGS, VEHICLES, AND HOUSEHOLD GOODS.

PARK, of New York, makes a report on the subject to the *Medical News* of May 13, 1899. As a result of the investigations undertaken in the Department of Health Laboratories on the use of formaldehyde as a disinfectant, and a consideration of the work of others, he believes correct conclusions may be summarized as follows:

1. *Disinfection of Infected Dwellings.*—Exposed surfaces of walls, carpets, hangings, etc., in rooms may be superficially disinfected by means of formaldehyde gas, all apertures being tightly closed, when employed in the proportion of twelve ounces of formalin or five of paraform to each 1000 cubic feet; the time of exposure to be not less than four hours, and the temperature of the apartment not below 52° F. Under these conditions non-spore-bearing bacteria are entirely or almost entirely destroyed when freely exposed to the action of the gas. Spore-bearing bacteria, such as anthrax bacilli, are not thus generally destroyed. But these latter are of such rare occurrence that in house disinfection they may practically be disregarded, and if present special measures can be taken to destroy them.

The penetrative power of formaldehyde gas at ordinary room temperature, even when used in double the strength necessary for surface disinfection, is extremely limited. Articles, therefore, such as bedding, carpets, upholstery, clothing, and the like, should when possible be subjected to steam, hot air, or formaldehyde disinfection in special chambers constructed for the purpose. If not, they must be thoroughly exposed on all sides. Diphtheria bacilli are fortunately among the most easily destroyed bacteria.

2. *Disinfection of Bedding, Carpets, Upholstery, etc.*—Bedding, carpets, clothing, etc., which would be injured by steam may be disinfected by means of formaldehyde gas in the ordinary steam disinfecting chamber, the latter to be provided with a heating and vacuum apparatus and special apparatus for generating and applying the gas. The gas should be used in the proportion of not less than tenfold the amount used for surface disinfection, the time of exposure to be not less than eight hours, and the temperature of the chamber not below 110° F.

In order to insure complete sterilization of the articles they should be placed so as to

allow of a free circulation of the gas around them—that is, in the case of bedding, clothing, etc., these should either be spread out on perforated wire shelves or loosely suspended in the chamber. The aid of a partial vacuum facilitates the operation. Upholstered furniture and other articles requiring much space should be placed in a large chamber, or better, in a room which can be heated to the required temperature. The most delicate fabrics, furs, leather, and other articles which are injured by steam, hot air at 230° F., or other disinfectants, are unaffected by formaldehyde.

3. *Disinfection of Books.*—Books may be satisfactorily disinfected by means of formaldehyde gas in the ordinary steam chamber as above described, and under the same conditions of volume of gas, temperature, and time of exposure. The books should be arranged to stand as widely open as possible upon perforated wire shelves set about one or one and one-half feet apart in the chamber. A chamber having a capacity of 200 to 250 cubic feet would thus afford accommodation for about sixty books at a time. Books cannot be satisfactorily disinfected by formaldehyde gas in houses and libraries, or anywhere except in special chambers constructed for the purpose, because the conditions required for their disinfection cannot otherwise be complied with. The bindings, illustrations, and print of books are in no way affected by the action of formaldehyde gas.

4. *Disinfection of Carriages, etc.*—Carriages, ambulances, cars, etc., can be easily disinfected by having built a small, tight, brick building, in which they can be enclosed and surrounded with formaldehyde gas. Such a building is used for disinfecting ambulances in New York City.

5. *Advantages of Formaldehyde Gas over Sulphur Dioxide for the Disinfection of Dwellings.*—Formaldehyde gas is superior to sulphur dioxide as a disinfectant for dwellings, first, because it is more effective in its action; secondly, because it is less injurious in its effects on household goods; thirdly, because, when necessary, it can easily be supplied from a generator placed outside of the room and watched by an attendant, thus avoiding, in some cases, danger of fire. Apart from the cost of the apparatus and the greater time involved, formaldehyde gas generated from commercial formalin is not much more expensive than sulphur dioxide, viz., 20 cents to $1 per 1000 cubic feet, against 10 cents with sulphur.

Formaldehyde gas is the best disinfectant at present known for the surface disinfection of infected dwellings. For heavy goods it is far inferior in penetrative power to steam and dry heat at 230° F., but for the disinfection of fine wearing apparel, furs, leather, upholstery, books, and the like, which are injured by great heat, it is, when properly employed, better adapted than any other disinfectant now known.

POISONING DURING CHLOROFORM ANESTHESIA IN THE PRESENCE OF A NAKED FLAME.

Under this title KENELM WINSLOW tells us in the *Boston Medical and Surgical Journal* of May 11, 1899, of a recent experience of his own, which he deems worthy of notice, not on account of its extreme rarity, but rather because a similar incident might befall any practitioner, and because it is probable most well-informed physicians are unaware of the reason for, or possibility of, such an occurrence. Dr. Winslow apologizes for the latter statement by admitting that until the happening of the event herein recorded he would have been included with the ignorant majority.

Dr. Winslow says that some months ago he was called by a fellow practitioner—Dr. C. A. Davenport, of Newton, Mass.—to assist at an obstetrical operation. A nurse, under the direction of Dr. Davenport, administered chloroform to the patient, who was on a bed at one side of a rather small room (12x13x8½ feet) in which were burning three gas flames, two in the center of the room and one more remote from the patient. In a short time all except the patient were conscious of a choking, stinging, irritating sensation in the throat and chest, resulting in incessant coughing and gasping for breath. The coughing and choking became so violent that it was utterly impossible for them to proceed with the attempted forceps delivery. They were, moreover, unable to trace the source of the trouble, and after searching unsuccessfully for evidence of escaping coal or illuminating gas were compelled to open all the windows and doors before continuing the operation. The latter was concluded under ether, not because chloroform was suspected to be the cause of the difficulty, but for the reason that the manipulations necessitated prolonged anesthesia. They soon recovered from the immediate irritation of the respiratory passages and without any ultimate ill-effects.

The patient was naturally not cognizant of the casualty until told of it afterward, nor did she suffer any harm whatsoever.

Not long after, being puzzled by the affair and having it in mind, Dr. Winslow noticed the following lines in the *New York Medical Record* (Feb. 18, 1899, p. 237), in an article entitled "Notes on Anesthesia," by Emil Aronson: "It is best not to use chloroform by gaslight; the free chlorine has not only killed the patient, but in a recent case also the attending physician, and made two nurses very sick for some time."

This immediately suggested the explanation of the unpleasant experience noted above. On talking with a number of medical men, Dr. Winslow failed to meet one who was aware of any danger attending chloroform anesthesia in the presence of a flame, and on looking up the matter in the "Index Medicus," "Jahresbericht der Pharmacie," "Index Catalogue of the Surgeon-General's Office, U. S. A.," and "Sajous' Annual for 1898," he found but few references, in addition to a few he has been able to gather elsewhere, and most of which he has consulted in the original before writing this paper. There was no reference to any article in any American periodical, and the only mention of the subject he has seen in one—except the few lines in the *Medical Record* quoted above—is a brief editorial in the THERAPEUTIC GAZETTE kindly brought to his attention by the editor, Professor H. A. Hare. The only allusion to the matter found in any text-book is that contained in Hare's "Practical Therapeutics," wherein it is stated that "Chloroform vapor in the presence of gas flame undergoes certain changes which result in the development of noxious and irritating fumes, consisting principally of hydrochloric acid and chlorine, which produce laryngeal and bronchial irritation." In regard to the chemistry concerned with the decomposition of chloroform by flame, Dr. Winslow finds that the statements of different writers are generally conflicting as to the probable reactions involved.

This may be readily accounted for, since chloroform may be split into various compounds, according to the temperature and other conditions to which its vapor is subjected in coming in contact with a naked flame. When chloroform is passed through a red-hot glass tube the following reaction ensues: $2CHCl_3 = C \equiv C + 2Cl - Cl + 2HCl$. The carbon is deposited in the tube. But if exposed to the naked flame in the presence of air and products of combustion (H_2O and CO_2), a somewha different reaction occurs, in fact apparently varying with the fancy of each medical writer. According to the recent edition of Watt's Dictionary of Chemistry, which we may consider authoritative, chloroform vapor in the presence of flame acts as follows: $2CHCl_3 = CHCl_2, CHCl_2 + 2Cl$. Then it is probable that $CHCl_2$, $CHCl_2$ (acetylene tetrachloride) further breaks up into hydrochloric acid, chlorine, and carbon, thus: $2CHCl_2 = 2HCl + 2Cl + 2C$, as before.

Finally, Professor Bosshard (*vide* Stobwasser) has analyzed the products resulting from the passage of chloroform vapor diluted with air through a flame, and finds that they are: oxychloride of carbon ($COCl_2$), chlorine, and hydrochloric acid. This result shows that some of the chloroform vapor is oxidized—$2CHCl_3 + O_2 = 2COCl_2 + 2HCl$.

Dr. Winslow believes chlorine gas to be the chief resultant and toxic principle responsible for the bad effects observed in chloroform anesthesia in proximity to gas, oil, or other flame, because it is most readily formed and because its characteristic odor and the clinical symptoms bear out this assumption. He has performed successfully the following simple experiment which Professor E. S. Wood was good enough to suggest to him, exhibiting the presence of free chlorine and hydrochloric acid when chloroform vapor comes in contact with gas flame: If a piece of filter-paper be moistened with a solution of potassium iodide and starch and held above a flame—which is allowed to play over an open vessel containing chloroform—the paper is immediately colored blue, because the liberated chlorine combines with potassium and sets free iodine to form blue starch iodide. Again, a strip of blue litmus-paper held above the flame will instantly turn red, through generation of hydrochloric acid, but soon becomes decolorized by the chlorine, which also renders the air irrespirable.

To turn now to the clinical side of the question, the experience of Professor Zweifel furnishes the most extended and instructive, not to say startling, evidence of the dangers attending the use of chloroform near gas flames. No series of prearranged experiments could possibly be more complete, although their author certainly does not appear to have conducted his operations with experimental intent. A number of abdominal sections were performed in an apparently ill-ventilated room under chloroform, and in the presence of three gas flames, one an Argand

burner. In seven cases out of nine catarrhal pneumonia developed, and one resulted fatally. Two of the non-affected patients were operated on during bright days, and so artificial light was not required.

Following the recited incidents Zweifel employed ether on eight patients in the space of as many days, subject to the same conditions and with the assistance of the same artificial light as before, yet with no untoward results. The symptoms of Zweifel's patients were, briefly, tremendous coughing, dyspnea, pain in the wounds, occasioned by the violent muscular contractions, and, in one instance, emphysema of the skin over the chest, caused presumably by rupture of alveoli in the pulmonary interlobular connective tissue and entrance of air, which found its way to the root of the lung, into the mediastinum, thence to the fossa jugularis, and finally to the subcutaneous tissue over the chest.

Dr. Mey, of the Catholic Hospital in Herne, Westphalia, reports an operation for gunshot wound of the abdomen, lasting four hours, under the influence of chloroform and in the presence of gaslight, during which the surgeons and sisters in attendance were overcome by the decomposition products of the anesthetic, one sister dying on the second day following the operation.

Another instance occurred during an operation for strangulated hernia, in which three ounces of chloroform was used, and one-half ounce was spilled accidentally on the floor in a small, badly-ventilated room, heated by an oil stove and lighted by an oil lamp and candle. The anesthetist succumbed first, and all were seriously but not fatally affected with coughing and pain in the chest, lasting for several days in the case of the operator and nurse. The patient is not reported as having suffered at all. The general symptoms in most of the reported cases are constant, dry, spasmodic, and paroxysmal cough, which may affect the patient as well as the bystanders. In one instance it became difficult to prevent the patient from falling off the table, so violent was the coughing. There is a stinging sensation in the nostrils, a perception of a pungent odor, and a feeling of distress and oppression in the chest. Often the patient has stridulous breathing, and heart and respiratory failure are reported. Retching and vomiting occasionally occur.

To further convince us of the danger of chloroform anesthesia in proximity to flame, we have the experiments of Stobwasser conducted on rabbits and guinea-pigs exposed to air laden with varying amounts of chloroform decomposition products. The animals were killed, and their bodies exhibited evidences of bronchopneumonia and edema of the lungs. The trachea was deeply injected, and both trachea and bronchial tubes were filled with frothy mucus. There was also passive congestion of the liver and kidneys, and the blood was dark and coagulated.

THE HEMORRHAGES OF THE EARLY MONTHS OF PREGNANCY.

JARDINE in an article with this title in the *Scottish Medical and Surgical Journal* for May, 1899, tells us that in his opinion treatment of hemorrhage in the early months of pregnancy differs according to whether it is threatened or inevitable. In the former the patient must be kept quiet in bed. If the bowels are loaded they should be cleared out with a gentle laxative, or better, by means of an enema of soap and water. A drastic purgative must be avoided. The food must be light and non-stimulating. The medicinal treatment aims at quieting uterine action. Opium in one form or other Dr. Jardine thinks is the best drug. The extract of viburnum prunifolium is highly spoken of as a uterine sedative. Dr. Jardine has used it with good results. Hydrastis canadensis is also said to be useful, but he has had no experience with it. Small doses of ergot are also highly recommended by some, but condemned by others. His experience of ergot is that it is very uncertain in its action This is probably due to the fact that the preparations used are often not freshly made. On the whole, he is inclined to think opium is the best drug to use.

The patient must be kept quiet in bed for a week or ten days. If there is any displacement of the uterus it should be rectified and kept in position by a pessary. We must warn the patient to be specially careful when her next period or two are due. She should rest then. If we find there is a syphilitic taint, we should put her on mercury and iodide of potassium and keep her on it until full term. In cases where abortions not due to syphilis have been frequent, Dr. Jardine has obtained very good results from chlorate of potassium, ten grains thrice daily, all through the pregnancy. [With this latter plan we entirely disagree.—ED.]

In spite of treatment some cases, which appear to be only threatened, will become inevitable. The line of treatment must then

be changed. In an inevitable abortion we must try to get the uterus emptied as soon as possible. There are several methods adopted. It is a very common practice to give ergot in full doses in the hope that the uterus will completely empty itself. This is a very uncertain method, and Dr. Jardine says he does not recommend it.

In a case where the os is dilated sufficiently we should remove the uterine contents with our fingers. We may be able to express it bimanually. Ovum forceps may be used, but the finger is the best instrument. If we cannot get it all away we must use the flushing curette, and douche out the uterus with an antiseptic. The hemorrhage usually ceases on douching, but in rare cases it continues. The uterine cavity should then be plugged with an antiseptic or aseptic plug. Iodoform gauze makes the best antiseptic plug. The plug should be removed within twelve hours. After clearing out the uterus, ergot should be given for a day or two.

In a case where the discharge is free and the os is not sufficiently dilated to admit of clearing out the uterus, the best plan is to thoroughly plug the vagina after douching it out. Iodoform gauze makes the best plug, but aseptic lint or a kite-tailed plug of pledgets of aseptic wool answers the purpose equally well. Full doses of ergot may be given. The plug should be removed within twelve hours. The ovum will often be found lying on the top of the plug on its removal. If the os is not sufficiently dilated to clear out the uterus with the finger or curette, we may plug again.

In some cases it may be desirable to clear the uterus at once. Dilatation can be effected by means of dilators, such as Hegar's—the metal ones are the best. Tents are advised, but it is very difficult to make sure that tents are aseptic, and if not, the risk is very great. For that reason Dr. Jardine does not recommend the use of tents.

Very often ergot is given in cases of incomplete abortion in the hope that the retained portion will be expelled, but this is bad treatment. The uterus should be thoroughly curetted with a dull flushing curette. It may be necessary to dilate the cervix to do this. With the patient under chloroform this can easily be done with Hegar's or some other form of dilator. Tents are dangerous. As a rule the bleeding ceases on douching, but Dr. Jardine says he has seen one case in which it did not. The case was that of a young unmarried girl admitted last summer. She was bleeding freely on account of an incomplete abortion. She was an intelligent girl, but they could not get a straightforward history from her. Dr. Jardine strongly suspected it was a procured abortion. Under chloroform he dilated the cervix with Hegar's dilators, and thoroughly curetted the uterus with a flushing curette. In spite of a douche at 120° the bleeding remained profuse. It was checked completely by an intrauterine plug of iodoform gauze. She made an excellent recovery.

Jardine thinks that in missed abortion, if the os is dilated sufficiently, we should clear out the uterus with the finger or a curette. In a case where there is no attempt on the part of nature to expel it, we should dilate with Hegar's dilators, and separate the mass with the finger and remove it. The cavity should be thoroughly cleared with the flushing curette. Ergot and iron should be given, and we will probably have to treat the endometritis for some time.

In all cases where any examination or operative interference is necessary, the strictest antiseptic and aseptic precautions must be taken. The after-treatment in all is the same as after a full-term labor. Douching as a routine is not necessary unless there is sepsis, and then it must be done carefully and thoroughly. The patient should be kept in bed for at least a week. We will find this is a difficult task, but we should insist on it. Ergot is usually given to hasten involution.

If the abortion is a complete one, the usual after-treatment is all that is required.

Dr. Jardine leaves the consideration of prophylactic treatment to the end because, as a rule, we are not called upon to use it until the woman has had at least one abortion. The best prophylactic treatment in many cases is to properly treat abortions so that the uterus will return to a healthy condition —*i.e.*, to thoroughly clear it out and keep the patient quiet until involution has occurred. She should not resume intercourse until involution is complete and the endometrium is in a healthy condition. If syphilis is present, she should be put on antisyphilitic remedies. The husband should also be treated, but Dr. Jardine says he must warn us to be extremely careful in dealing with cases of this kind, as we may very easily upset the peace of a home.

In cases of endometritis, intercourse should be prohibited until the condition is cured.

Jardine has seen many cases of abortion in patients who became pregnant before their endometritis was completely cured. If there is anemia or other constitutional weakness present, suitable treatment must be adopted. In cases of habitual abortion from degeneration of the placenta, chlorate of potassium is a most useful drug. [We disagree with this.—ED.] We should give it continuously during pregnancy. If the uterus is displaced we must replace it and put in a pessary to support it. We should always warn our patients against overexertion, especially at times corresponding with the menstrual periods, and more especially at the time corresponding with former abortions.

ON THE USE OF ANTISTREPTOCOCCIC SERUM IN INFECTIONS BY THE STREPTOCOCCUS.

In the *Medical News* of May 6, 1899, BRISTOW tells of his use of this serum in the treatment of a number of cases. He used the serum made in the biological laboratories of Parke, Davis & Company.

It is well known to bacteriologists that the protective power of antistreptococcic serum is low at present and varies considerably, some specimens being fourteen times the potency of others, according to Marmorek's own statement. It seems idle, therefore, to expect results from a timid use of a relatively feeble serum. If good is to be expected from the use of the serum in this class of cases, it must be used in far larger doses than hitherto. Quantities of less than sixty cubic centimeters a day will not as a rule avail much, and much greater daily quantities may be necessary. Moreover, it must be used early in the disease, before multiple abscesses have formed in the uterine walls and septic thrombi have collected in the vessels of the pelvic structures. It has been noted in commenting on the use of this serum in the phlegmonous cases that while it seemed to limit the range of infection, or prevent suppuration where this had not already occurred, after pus had actually formed drainage was still absolutely essential to the recovery of the patient. The same rule will evidently apply to the uterine cases. This is probably the chief reason why the results of the serum in the puerperal cases have been so discouraging. The serum has been used late, after septic foci have been established and drainage has become a necessity. This, however, is most difficult to secure without the shock of a hysterectomy, in itself sometimes sufficient to carry off the patient. The early and free use of the serum will, it is to be hoped, give better results.

What is the proper dose of the serum? This is a practical question, and at present it can only be answered by saying that too much rather than too little must be given, because the serum has not as yet been standardized. An average dose is ten cubic centimeters. Twenty cubic centimeters will often be required, and daily quantities of 60 to 100 cubic centimeters may be needed. It is possible that the varying experiences of different observers have been due to the use of serums of different degrees of strength. It is not possible to give a definite dosage until the manufacturers succeed in standardizing their products, something which they hope to do at no far distant date. Until this has been accomplished the experiences of different observers must be of quite limited value.

In connection with the question of dosage, a second most practical query will suggest itself as to the possible dangers incurred in introducing large quantities of foreign serum into the circulation. Aside from the occasional appearance of erythemata and urticaria, Dr. Bristow does not believe that any serious risks are to be apprehended. In a series of reports of more than 1000 cases collected by him, the only instances in which the serum was charged with ill effects were in four or five puerperal cases. The unfavorable symptoms were classified as follows: sudden high temperature; collapse; uncontrollable vomiting. If these symptoms were the result of the serum we should expect to hear of their occurrence in some of the 800 remaining cases of the 1000. On the contrary, there is no record of such symptoms except in the puerperal cases, notwithstanding that much larger doses were given to children particularly, one child receiving 263 cubic centimeters and another 90 cubic centimeters. Now it is a fact that these very symptoms (sudden high temperature, obstinate vomiting, collapse) are all features in the pathologic history of abdominal sepsis. It does not, therefore, seem good reasoning to attribute these symptoms, evidently coincidences, to the use of the serum when it cannot be shown from the evidence at hand that they occurred in any other of the 1000 patients, but as a matter of fact occurred in those instances alone in which they were to have been expected apart from the use of the serum.

The serum has been used in cases of so-called malignant endocarditis with success, and in the bronchopneumonia of children (forty-five cases, Marmorek) without a single death. This affection, Marmorek states, is almost always of streptococcic origin. Considering the usual mortality of the disease in children this record is noteworthy.

ACUTE INFLAMMATION OF THE TYMPANIC CAVITY.

S. MacCuen Smith, in the *Philadelphia Medical Journal* of May 6, 1899, expresses the belief that the treatment of acute inflammation of the tympanic cavity will largely depend on the cause, stage, and severity of the attack. If the origin is catarrhal, and treatment is instituted during the stage of hyperemia, the inflammation will be arrested and confined to the seromucous or non-suppurative stage. If, however, this early care has not been given, the case will likely progress to the stage of suppuration, and rupture of the membrana tympani. The presence of deep-seated pain, increased by pressure over the tragus, calls for immediate bloodletting in front of the tragus. For this purpose Dr. Smith strongly urges the use of the artificial leech, on account of its convenience and efficiency; one or two cylinders of blood (or its equivalent, three or four Swedish leeches) should be extracted.

If bloodletting cannot be resorted to in young children, a blister will answer a fairly good purpose. The application of either dry or moist heat will give much relief in incipient cases; the first can be applied either by the hot-water bag, or by the bag of hot salt; the latter by instillations of a hot saturated solution of boric acid, the ear to be protected by a piece of cotton placed in the external canal, and worn for some time after the pain has subsided. The nasopharynx should be carefully examined and treatment applied to correct any abnormal condition.

Small doses of calomel and soda should be administered, until free purgation is established. A coryza tablet, composed of atropine sulphate $\frac{1}{600}$ grain, arsenous acid and strychnine sulphate of each $\frac{1}{240}$ grain, morphine sulphate $\frac{1}{100}$ grain, quinine sulphate $\frac{1}{10}$ grain, and camphor $\frac{1}{4}$ grain, should be taken every hour until a decided dryness of the throat is produced; then continue every two or three hours, for two or three days. Salol and phenacetine, or antipyrin, will be of service in appropriate cases, especially if there is a rheumatic tendency, or if the pain is severe.

It is assumed that if the patient is seen before suppuration has occurred, every effort will be made to arrest or modify the disease without surgical intervention. If, however, the disease does not yield to the treatment outlined, and the pain continues, with or without bulging of the membrana tympani, the membrane should be immediately incised, the point of election usually being the posterior inferior quadrant. As it is possible for the pus to be confined either to the superior or inferior portions of the tympanic cavity, it is best to incise the membrana tympani at the most dependent point, always bearing in mind that the object to be accomplished is the free evacuation of fluid from the middle-ear cavity. The drumhead should never be punctured, but, on the contrary, a free incision should be made, always extending it down to the inferior surface of the canal, so as to insure good drainage; otherwise the suffering and danger incident to the confined pus will continue. Care should be taken that the incision shall not interfere with the ossicles, and that it shall be done under proper antiseptic precautions.

Syringing of the ear should not be employed in acute suppurative otitis media, unless there is some special indication for its use. The discharge should be removed by cotton twisted on an applicator, some hydrogen peroxide instilled, and allowed to remain in the canal for four or five minutes; then dry the canal with cotton, introduce a small strip of iodoform gauze, and place a small plug of absorbent cotton exterior to the gauze, to catch the discharge. This dressing should be renewed daily for a week, when the case should begin to improve, and thenceforward will require less frequent dressing.

After the acute symptoms have subsided, it is well to rid the tube and middle ear of any retained pus by Politzer's method of inflation, to be repeated about once a week if found necessary.

THE OPIUM HABIT IN CHILDREN.

The *Archives of Pediatrics* some time since referred in its pages to the disastrous results which follow the improper administration of opium in pediatric practice. No other drug in the materia medica requires more intelligence and discrimination in its use. This being true in the hands of skilled physicians, it is self-evident that it cannot be used by

the laity with impunity. Many deaths are unquestionably caused by it every year, while the number of babies who are forced into the opium habit is appallingly large. At the Babies' Hospital in New York careful investigation recently showed that over half of the patients received under six months of age had been systematically drugged with opium in the form of paregoric or soothing syrup. Attention is again called to the subject by a discussion in the May number.

An infant may become as firmly addicted to opium as an adult, and feels as keenly its withdrawal. Sudden stopping of the drug is marked by restlessness, wakefulness, and every indication of suffering and distress. An infant has been seen, to whom paregoric had long been given regularly by a nurse, in a state bordering upon a frenzy twelve hours after the nurse's enforced absence.

Infants acquire the opium habit in one of three ways: through the mother, who does not realize the harm she is doing, but resorts to soothing syrup or some other opium preparation to obtain quiet and rest for herself; through the nursery maid or other attendant, who neither knows nor cares what the result may be so long as she is spared from trouble; through the monthly nurse, many of whom make capital upon their ability to keep a child quiet.

In the first of these cases the doctor is often at fault in advising the administration of paregoric for the minor aches and pains of the infant. For the relief of pain no drug equals opium. When actual pain is present, it may be given to children with perfect propriety. Condemnation cannot be too strong, however, against its use for the lesser ills and aches. It should never be used for sleeplessness, unless due to actual pain. It is so prompt and effective in its action that the mother is tempted to resort to it again and again. It is unwise to allow a mother to suppose that she can use paregoric. If it is indicated, let it be prescribed or left diluted ready for use. A few tablets may be carried, each representing ten minims of paregoric. These can be left with the assurance that no more will be given than is intended, and the mother will be in ignorance as to their exact nature. When a child is cross and irritable, the temptation to the mother to repeat an opiate is very great, and should be guarded against as far as possible.

Among children's nurses the habit of resorting to opiates is unfortunately very common and wide-spread, and accounts for many obscure and unexplained symptoms among their charges. A nurse who boasts much of her ability to keep an infant quiet, be she a nursery maid or a monthly nurse, should be an object of suspicion. It is rare that positive proof can be obtained, but the circumstantial evidence is frequently very strong. The presumption is strong when an obstetric nurse habitually has docile and abnormally quiet infants who become restless and wakeful a day or two after she leaves the house. The mother usually blames herself, and attributes it to lack of knowledge and experience on her own part. She is prone to have profound respect for the superior ability of the nurse. Too often the true explanation of the baby's change is an entirely different one.

While it would be a great injustice for the physician to be suspicious of every nurse, and cruel to charge such practices without ample warrant, he should, nevertheless, have ever in mind such possibilities. He should not be blind to the fact that the opium habit is not uncommon among little children, and he should never be the means of establishing it by injudicious advice to mothers and nurses.—*Archives of Pediatrics*, May, 1899.

SHOULD THE UNITED STATES PHARMACOPŒIA RECOGNIZE VERATRUM ALBUM AND VERATRUM VIRIDE AS ONE DRUG?

H. C. Wood and H. C. Wood, Jr., attempt to answer this question in the *American Journal of the Medical Sciences* for May, 1899. As the result of their whole series of experiments, they conclude that the only evidence which they have been able to obtain of differences in the action of *Veratrum viride* and *Veratrum album* is that *Veratrum album* more frequently purges man when taken in toxic doses than does *Veratrum viride*, and that some specimens of *Veratrum album* are stronger than are some specimens of *Veratrum viride*. On the other hand, it would seem, however, probable or even assured by the experiments that different specimens of *Veratrum viride* may vary greatly in their strength, and that some specimens of *Veratrum viride* may be stronger than some specimens of *Veratrum album*. It is not probable that a clinician would be able to perceive any difference in the action of the therapeutic dose of the two plants, so that it would be proper for the Pharmacopœia to recognize both species, if any advantage could be gained by so doing. A national

pharmacopœia should, however, according to Dr. Wood's idea, favor the use of American drugs when it can do so without injury to any one. The recognition of *Veratrum album* would be an aid in the substitution of an American by a foreign drug which now has very little vogue in our markets, and which possesses no advantages whatever over its American representatives. Any difference which may possibly exist between the two Veratrums is in favor of the American drug as less apt to disturb intestinal digestion. Under such circumstances the recognition by the United States Pharmacopœia of the European drug seems to them of doubtful expediency.

INSANITY IN CONNECTION WITH DISEASE OF THE DUCTLESS GLANDS.

The *Medical Record* of April 29, 1899, contains an article by HAMILTON on this subject. In its course he remarks that the results of the administration of organic extracts for the treatment of mental diseases of the kind described, and, in fact, of many psychoses with no such origin, have been, to say the least, interesting, especially when the thyroid has been administered either in the raw form or in powder. Babcock has had particularly happy results in cases having diverse characteristics, and his experience has been shared by many others. In his list of patients, which included examples of stuporous, melancholic, cerebral exhaustion, and chronic disturbed cases, there was a prompt clearing up and elevation in temperature, and in some cases an increase of hemoglobin of at least twenty per cent. Occasionally there was more marked mental depression, which was followed by a stimulation of intelligence. Osler reports a series of cases in which the most wonderful transformation took place in cretinous and myxedematous subjects, and in which a decided amelioration of the mental as well as the physical symptoms took place when large doses of the powdered thyroid were given.

Dr. Hamilton says his experience, while less extensive than that of others, has led him to believe that at least in chronic depressed states this organic extract sometimes does much good, and especially encouraging results were obtained in a case of chronic insanity with erotic delusions, seen in consultation with Dr. Dana. So fixed had been the patient's mental disease, and so many plans of treatment had been tried unsuccessfully, that it was with slight hope that they prescribed the powdered thyroid; but the prompt subsidence of the symptoms, the greater or less improvement of general intelligence, and even the disappearance of physical indications of dementia, fully justified the experiments. The patient during the administration of the powder improved, but after a time relapsed into her old stuporous condition, when it was discontinued.

The duration of the beneficial results attending the use of thyroid extract does not appear to be so lasting in ordinary insanity as it does in the true thyroidal insanities, possibly because the cerebral malnutrition and cortical changes are too deep-seated. In the insanity of acromegaly Andriezen has used powdered pituitary gland with benefit. In stuporous melancholia and psychoses in which the katatonia symptom-complex was present, it has been of use. Splenic glyceride has been recommended and used by Clark, of Scotland, who noted as much as fifteen per cent increase in the pulse-rate, with slight temperature elevation in depressed cases, and with slight increase of weight and an improvement of the condition of the skin, together with a lightening up of the stupidity of the patient. This observer also noted that in all cases of insanity the weight of the spleen was below normal.

The interesting physiological results of Schäfer, who experimented with the adrenal extract, and demonstrated that when it was injected into the veins there was a decided if not lasting effect upon the arterioles, which were contracted as the result of its use, and if taken by the mouth a general diminution of the caliber of the arteries could be detected by Oliver's arteriometer, has led Dr. Hamilton to try it in mental cases. While it has been used as a substitute for cocaine as an application to the mucous membrane, as recommended by others for surgical operations, it has not yet been administered internally, although Gilman Thompson has suggested its employment in hematemesis. Dr. Hamilton has used it in cases of exophthalmic goitre with decided benefit, and in two cases of hysterical mania it promptly reduced the excitement and produced sleep when divided doses of from five to twenty grains were taken. Its effects, while not lasting, are certainly preferable to those of some narcotics, and it is possible that it may sometimes be indicated as a substitute for morphine or hyoscine. When morbid mental states are the result of toxemia it may be administered.

Just how important are the relations of the

internal secretions to each other, and how much their variations are likely to be followed by the development of psychic symptoms if not by actual physical change, is so far undeterminable, and can be tested only by experiment. It would appear that in the hands of Ringer, Phear, Lloyd-Jones, Dyson, Park, and others, adrenal extract has done little good in Addison's disease, although a slight improvement in the mental dulness and weakened condition of the circulation followed. In a case reported by Dyson, of a girl of thirteen years, in whom a progressive loss of memory and maniacal excitement and coma preceded death, the tincture of the adrenal gland was given without effect. It does not appear that thyroid extract was tried.

OOPHORECTOMY AND THYROID TREATMENT IN CANCER.

The effects of the menopause on the generative apparatus, and on the breasts in particular, suggested to certain enterprising surgeons some time since that malignant growths of the breast might be favorably influenced by an artificially induced menopause, as, for instance, by ablation of the ovaries. On the whole the results of the operation, though not devoid of interest, have not proved quite as successful as had been hoped. Subsequent observations by a method in which the administration of thyroid extract was associated with the removal of the ovaries have given much more promising results, though one is quite at a loss to explain the *modus operandi* of the combined treatment or to apportion the relative merits of the two factors.

At a recent meeting of the Medical Society of London, as reported in the last issue of the *Medical Press and Circular*, Dr. G. Herman recorded a second case in which this operation, plus the administration of thyroid gland, had given results so successful as to be remarkable. In this particular case the treatment had brought about the healing of a large carcinomatous ulcer of the right breast which had recurred after two operations for removal by surgical means, and had determined the disappearance of a large tumor in the other breast, the nature whereof was sufficiently indicated by the enlargement of the corresponding axillary glands, which glands also had ceased to be perceptible to the touch. These results are sufficiently remarkable to merit attention, especially in view of the unsatisfactory results of purely surgical measures, which are at best but palliative. Mr. Stanley Boyd inclines to the view that the improvement is really due to the oophorectomy, but statistics hardly bear out his contention, for Dr. Herman had no trouble in showing that the results after oophorectomy alone were not nearly as good as when the thyroid treatment is superadded. Further experience will show which of the two factors plays the most important rôle in producing these results. It seems, however, that oophorectomy, if it is to be of service, must be done before the cessation of menstruation, for in several recorded instances no effect has followed their removal after the menopause. This is what one might have anticipated, though from another point of view it seems odd that if the artificially induced menopause exerts such a marked effect the natural process should not confer similar quasi-immunity against cancer. This fact tends to support the view that oophorectomy alone is not sufficient to determine a constitutional change capable of inhibiting malignant growths. Dr. Herman suggests that the withdrawal of the ovarian secretion and the presence of an excess of thyroid secretion render the tissues less amenable to the ravages of the hypothetical parasite of cancer, and this explanation is in accordance with the results so far obtained.

Has excessive thyroid secretion any direct influence in conferring immunity against cancer? This question ought not to be difficult to answer, for we have only to ask ourselves whether on the one hand women who suffer from exophthalmic goitre ever develop cancer, and whether, on the other hand, myxedematous patients display any marked predisposition thereto. We must not forget, however, that cancer has its vagaries. There is the well known case of Mr. Gould, in which a patient apparently dying from cancer, and regarded as past treatment, suddenly took a turn for the better, and ultimately made a perfect recovery without treatment of any kind. There are, indeed, plenty of cases on record of the spontaneous subsidence of cancer, and it is hardly in accordance with scientific methods to dismiss all instances as examples of faulty diagnosis. That is merely begging the question at issue. We must not allow our judgment to be warped by preconceived pathological notions. It is possible, and indeed probable, that the microscope alone does not enable us to establish absolutely the malignancy of a tumor. Malignancy, moreover, is essentially a clinical

term; it characterizes growths in which from microscopical data one would not have expected it, while it is sometimes absent in growths which, as far as microscopical evidence goes, are doomed to rapidly fatal development. These facts should teach us not to be too dogmatic, and not to pin our faith to such a kaleidoscopic science as pathology, which, useful when taken in conjunction with clinical observation, is apt to prove misleading when erected into a scientific dogma. We shall probably not have long to wait for further and more extensive observations on the lines which we have sketched, and these will serve to teach us the limits of the treatment and possibly, later on, the precise method of its action.—*Medical Press and Circular*, April 19, 1899.

SOME OF THE LESS COMMON EFFECTS OF MALARIA, WITH REMARKS UPON THE TREATMENT OF CHRONIC INFECTION.

The *Medical Record* of April 29, 1899, tells us that Dr. WILLIAM H. THOMSON contributed a paper with this title to the meeting of the New York Academy of Medicine, held April 20, 1899. He said that in 1862 he published a paper in which he argued that the chief facts concerning the communicable diseases could be explained only on the assumption that they were due to microorganisms, but this assertion had been received with much ridicule, as the prevalent belief at that time had been that these diseases were due to volatile poisons. But long after that time malaria held its own as a disease of this class—a distinct miasm, as its name implied. Our point of view in regard to malaria has, however, wholly changed, and our present view regarding it constitutes a very great advance in medicine. If the inoculation theory should become thoroughly established, it would mean practically an effectual check to the spread of malaria. Dr. Thomson said that in 1896 he had had in his hospital services two cases of fatal cerebral malaria, in which the diagnosis had been verified by autopsy. Both patients were Germans over sixty years of age, and both had contracted the disease while working in gardens on Long Island. The temperature had varied between 99° and 101° F. for eighteen days. Although vigorously treated, there had been no diminution in the large number of plasmodia present in the blood. Their condition resembled that of one suffering from uremia. At the autopsy the cerebral vessels had been found loaded with pigment. Such cases should suggest that when the origin of a febrile coma was obscure, the blood should be examined for the malarial organisms.

In those functional nervous affections, such as periodical neuralgias, dependent upon malarial infection, Dr. Thomson had had much success from combining ergot and quinine, even when large doses of quinine, antipyrin, and similar remedies had totally failed previously to give relief. In every case of this kind ergot had been uniformly successful. In some of them the administration of moderate doses of quinine with the ergot had produced cinchonism, which had not been the case when much larger doses of quinine had been given without the ergot.

If every first attack of malaria be treated carefully for six weeks, the author felt sure that there would be few cases of chronic malaria. Numerous observations on the incubation period following the first infection have shown that it varies very greatly in different persons. It was this feature of latency that persuaded patients to drift on without systematic and sufficiently prolonged treatment. The blood should be examined microscopically at intervals for at least nine months after apparent recovery. Chronic malarial infection implies a personal susceptibility, either original or acquired.

The treatment of malaria which Dr. Thomson would recommend begins with a mercurial laxative, given toward the close of the febrile paroxysm. The quinine should be administered from one to two hours before the time for the chill, but as one large dose is apt to disturb the stomach, it is better to give the desired quantity of quinine in three equal doses at intervals of two hours, the last one being given one or two hours before the chill. A most valuable adjuvant to quinine is ginger, given in the same dose as the quinine. Another useful addition is capsicum, in one-fourth of the dose of quinine. It is a curious fact that the first dose of this combination usually acts as a free purgative. In forty-seven cases of Cuban malarial fever that had resisted the usual treatment last fall, the author had adopted the plan of giving camphorated tincture of opium as an adjuvant to the quinine, and with remarkably good results, as already published. Perhaps the most striking action of this combination was in the improvement of the general condition, and the buoying up of the spirits. A

good method, at times, of administering the paregoric is by mixing it with the old compound infusion of cinchona.

PROPHYLAXIS AND TREATMENT OF INTESTINAL OBSTRUCTION.

The last number of *Schmidt's Jahrbücher* contains a review of some interesting contributions to this important subject. Professor Heidenhain, in discussing the cases that have come under observation in the clinic at Greifswald during the past few years, maintains that clinical experience absolutely demonstrates that intestinal obstruction may be in some cases the result of a purely functional disturbance of intestinal peristalsis. In three cases a spastically contracted portion of small intestine was found at operation as the cause of the acute symptoms. The serious disturbance of peristalsis had been brought about in one case by a stricture of the rectum high up, in a second by a volvulus involving the large intestine at the sigmoid flexure, and in a third by the presence of a roundworm.

In cases in which any chronic disease of the intestine exists every possible precaution should be taken to avoid disturbing the already irritated peristalsis by anything calculated to produce additional reflex excitation. Only the most bland food should be permitted, and every excess strenuously prohibited. Acute intestinal obstruction from bunches of roundworms knotted together has been noted before, but now for the first time the direct irritation due to the presence of a single worm has been reported as causing sufficient spastic interference with peristalsis to set up acute obstructive symptoms.

Three patients in whom complete intestinal obstruction was diagnosed were relieved by high injections. Under these circumstances doubt still remains whether the condition was due to any of the ordinary serious causes of true obstruction or was occasioned by an extreme degree of coprostasis. Heidenhain thinks that obstruction due to ileus at the sigmoid flexure, a not infrequent condition, may be relieved by injections—not, however, if the twist of the gut is more than 270 degrees. Operation for this condition, followed by fixation of the intestine, has given excellent results in Heidenhain's hands.

An interesting commentary on Professor Heidenhain's success with high injections in certain cases of acute obstruction is found in the report of Dr. Barker's experience with fifteen such cases. In six cases he succeeded in reducing the intussusception by water or air injections. The tumor so changed its character on palpation that no doubt of the reduction seemed possible. In every case, however, it recurred; in a few hours it could be felt as before, and necessitated operative interference. Of the fifteen patients, ten recovered. Eleven of the patients were children under sixteen months of age; one was an adult, aged thirty-two; the others were children, aged respectively four, five, and twelve years.

While injections of air and water still have a place in the therapeusis of obstruction, they must evidently not be allowed seriously to delay surgical procedures, which are always to be thought of at once. In intussusception in children where it was hoped injections would be effectual they have proved of doubtful utility, and may only make the eventual prognosis worse by delay. It is clear, however, that as diagnosis becomes more exact operations are undertaken earlier, and the percentage mortality from acute intestinal obstruction is ceasing to be the opprobrium to modern surgery that it formerly was.—*Medical News*, April 29, 1899.

SALINE SOLUTION IN SEPTICEMIA AFTER ABORTION.

OSTERMAYER (*Centralblatt f. Gynäkologie*, No. 12, 1899) relates how a very bad case of septicemia was successfully treated by small subcutaneous injections continued for a fortnight. The patient was twenty-six, and it transpired that her husband had induced abortion. Ostermayer was called in on November 25, 1898, for metrorrhagia. On the 27th a rigor set in; the curette being used, much placental and decidual tissue was removed, with old clot. A few days later jaundice was observed, then toothache, with periostitis of the adjacent part of the upper jaw. On December 8 the periosteum was incised and pus let out. General erythema and high temperature and pulse were next observed. By December 14 the patient was in a desperate condition; 300 grammes of a 0.9-per cent saline infusion was injected into cellular tissue of the right infraclavicular fossa. On the 15th she was very ill; another injection was given. The patient then began to improve. Vomiting and diarrhea, which had been severe, ceased, and the pulse, which on the 14th was too feeble and rapid to count, dropped to 108 and was strong. Urine be-

gan to be freely secreted. From the 16th to the 20th two subcutaneous injections of the saline solution were given daily—the last, once daily, were given on the 21st and 22d. The pulse was about 100, the temperature 98° to 100°; the erythema had nearly disappeared. By December 21 the patient was quite well. Ostermayer notes that the first infusion, injected on the evening of the 14th, was not absorbed till the following morning, yet temporary good effects were already observed. After the 18th the infused solution was absorbed within three hours.—*British Medical Journal*, April 22, 1899.

SALICYLATE OF METHYL.

Among recently introduced drugs salicylate of methyl seems to be one likely to prove of considerable use, and SCHOULL contributes an article on the indications for its use (*Journal de Médecine*, March 10, 1899). It is more particularly in the articular manifestations of rheumatism that it is successful, especially as a means of relieving pain, which disappears very rapidly under its administration, much more so than with salicylate of soda. The swelling of the joints is somewhat longer in disappearing, as is also the temperature, and salicylate of soda seems in this instance more efficacious. It is therefore proposed to administer the two salicylates together, under which circumstances the similar dose of the soda salt can be employed. Schoull has also employed a combination of salicylate of methyl and antipyrin, and has thus obtained some surprising results in the reduction both of the pain and temperature. He points out that the amount of urine should be watched during the administration of this drug. Salicylate of methyl is also of extreme advantage in subacute and chronic rheumatism, in which cases it presents a marked superiority over the soda salt. The same may be said of gouty arthritis. In certain other infective conditions, as gonorrhea, syphilis, and erythema nodosum, the effects, though good, are not so striking. The writer quotes Roger as having obtained very good results in the arthritic complications of eruptive fevers, especially scarlet fever, in which the action of antipyrin, salicylate of soda, or salophen is slight. The drug is also efficacious in neuralgia, sciatica, some forms of neuritis, herpes zoster, and lightning pains of tabes. Schoull has also tried salicylate of methyl in cases of orchitis from mumps, and with remarkable results, all the symptoms disappearing in two days. Even in cases of epididymitis the effects are very favorable. The treatment of mumps itself by salicylate of methyl has been tried by Picard, of Troyes, with considerable success.—*British Medical Journal*, April 22, 1899.

THE INDIRECT TREATMENT OF HEPATIC CIRRHOSIS.

CARDARELLI (*La Riforma Medica*, March 11, 1899) deals chiefly with the treatment by milk diet, of which he speaks highly. In the cases in which it does good, the urine increases in quantity, the urea increases, and the uroerythrin disappears. These good effects may not be seen all at once; they may be delayed, especially where there is much abdominal tension. Small quantities (half a liter or even less) should be given at first. If milk cannot be borne, large doses (40 to 50 grammes) of lactose may be given in weak broth. To test the power of absorption, the author recommends an enema containing five to six grammes of salicylate of soda, which may be looked for in the subsequent urine. The most reliable indication for paracentesis abdominis where there is ascites is the quantity and quality of the urine and the presence of edema of the lower extremities. In performing paracentesis, the author prefers the gradual method of extraction by Southey's tubes.—*British Medical Journal*, April 22, 1899.

THE USE OF HOLOCAINE AS A LOCAL ANESTHETIC IN EYE, EAR, NOSE, AND THROAT OPERATIONS.

In the *New York Medical Journal* of June 17, 1899, GUTTMANN concludes an article upon this subject with the following summary of his views. He thinks that in a discussion as to the relative merits of local anesthetics, eucaine, as compared with cocaine and holocaine, may be left entirely out of consideration, inasmuch as it not only has no advantages over these remedies, but has positive disadvantages. As regards holocaine and cocaine, the results of Dr. Guttmann's investigations on healthy eyes may be briefly summarized as follows: Both cocaine and holocaine possess the common property of paralyzing the terminal filaments of the sensory nerves, and both are therefore good local anesthetics. For practical purposes there is no great difference between them, as regards the time of onset or the duration of anesthesia. Nor do they materially differ

in the intensity of the resulting anesthesia. Either remedy may therefore be used indifferently in the ordinary operations on the eye. But whereas the cocainized eye, in his experience, was pale, protruding, of lowered tension, with the pupil dilated and the fissure of the eyelid enlarged, the holocainized eye was red and inflamed, of normal tension, not protruding, pupil normal, and palpebral fissure not enlarged. This difference in the effects of cocaine and holocaine is explained by the well known action of cocaine as an irritant to the terminal sympathetic nerve fibers, and its consequent vasoconstrictor effects. The pallor of the eyeball is therefore due to the powerful contraction of the blood and lymph vessels following the application of cocaine. The haziness and dryness of the cornea are also due to the vasoconstrictor effect of the cocaine, although the abolition of the reflex nictitatory functions of the eyelids, as a result of the anesthetic condition of the eye, is also partially responsible for them. But neither in Dr. Guttmann's observations nor in the experiments of others was any effect of holocaine on the sympathetic nerves to be observed.

From these observations we may derive conclusions as to the indications for the use of either one drug or the other. For the removal of a foreign body from the cornea holocaine is to be preferred, for unlike cocaine it does not produce the subsequent disagreeable mydriasis; also for a strabismus operation is holocaine to be preferred, for cocaine causes the muscle to shrink, and thus often permits some muscular fibers to escape the strabismus hook.

In the treatment of inflammatory affections of the conjunctiva and cornea, associated with painful blepharospasm, holocaine is of great value, for it not only relieves the spasm and allays the pain, but also acts as an antiseptic, and thus as a curative agent. But on the other hand, cocaine is to be preferred in the performance of an iridectomy where the arteries appear atheromatous and where we would avoid a considerable hemorrage. The vasoconstrictor effect of cocaine, and the diminished tension of the eyeball, together with the subsequent deepening of the anterior chamber, are all factors in favor of using cocaine for the performance of an iridectomy under these circumstances. For the extraction of a cataract where the pupil is small, cocaine is to be preferred on account of its mydriatic action. For the many other operations on and about the eye, these two agents may be used indifferently, unless, indeed, the bactericidal action of holocaine should incline us to use it in preference to cocaine. This latter consideration is sometimes of great importance, especially if we consider the time and trouble that is required to sterilize a solution of cocaine.

In choosing our anesthetic for operations on the ear, nose, and throat, we must consider whether the disadvantage of the freer hemorrhage following the use of holocaine is more objectionable than the disadvantage and undesirable shrinkage of the tissues following the use of cocaine. That the shrinkage of the tissues caused by cocaine is at times a disadvantage is illustrated by the following case: A lady of a somewhat nervous disposition, suffering from obstructed nasal breathing, was recommended to Dr. Guttmann for treatment. On examination, Dr. Guttmann found a hypertrophy of the posterior tip of the inferior turbinated body. The lady being very sensitive, he applied some cocaine solution to the nostril in which he intended to operate; but on introducing the cold snare he found that the tumor, which was previously so evident, could not now be seized with the instrument. A second examination showed him that the reason for this was the almost complete shrinkage of the tumor caused by the cocaine. Had holocaine been the anesthetic, he should have been spared the vexation of having to ask the lady for a second visit for the performance of the operation.

Besides the well known bitter taste and disagreeable choking sensation which cocaine produces when applied to the nose and throat, it also produces a sensation of dryness which causes the patient to hawk so much that very often profuse hemorrhage results. All these undesirable phenomena are entirely absent when we employ holocaine. Obviously, then, holocaine is to be preferred to cocaine, not only when we wish to avoid the shrinking effect of cocaine, as in the removal of granulations from the ear, of hypertrophies of parts of the turbinated bodies, of small polypi in the ear, throat, nose, etc., but also when we wish to avoid the other disagreeable effects of cocaine when operating on the aforesaid organs. It must be evident to all that holocaine is a valuable substitute for cocaine in persons who have unfortunately become victims of the cocaine habit, and in those exposed to the same danger from the frequent use of cocaine for the amelioration of some complaint.

In conclusion, Dr. Guttmann wishes to say that during the last year he has employed holocaine instead of cocaine in about a hundred and fifty operations, and has never observed the slightest toxic or alarming manifestation. According to the investigations of several writers, it is not advisable to use holocaine hypodermically. Although holocaine will never entirely replace cocaine, yet it will frequently be of equal service, and under certain circumstances will even be preferred to it.

SOME REMARKS UPON OBSTETRICS IN PRIVATE PRACTICE.

Dr. J. CLIFTON EDGAR, in an article with this title in the *New York Medical Journal* of June 17, 1899, asks the following questions, and then answers them:

Shall the obstetric outfit be prepared by the patient or nurse, or shall it be procured already prepared from some dealer in surgical dressings?

A further question naturally suggests itself, namely, of what does the obstetric outfit today consist?

Aside from the "mother's outfit," meaning the clothes she will need during her lying-in period, and the "baby's outfit," including, if possible, a "baby-basket," the obstetric outfit should at least include the following articles:

1. A douche-pan, preferably square and of enamel or agate-ware.
2. Two ordinary rubber blankets, or two pieces of rubber sheeting, one one yard square and the other two yards square.
3. Three or four dozen soft napkins for vulvar dressings, or the same number of vulvar pads from a surgical-dressing dealer.
4. One or two pounds of sterilized absorbent cotton, or twenty-five yards of cheese-cloth or sterilized gauze. This for sponging.
5. Six abdominal binders of soft muslin or mull, eighteen inches wide, and preferably made to fit the figure at the sixth month of gestation.
6. Two hand brushes.
7. Some old linen for the baby's eyes and mouth.
8. Four ounces of tincture of green soap.
9. Bottle of sublimate tablets.
10. Seven ounces of chloroform.
11. Four ounces boric acid, powdered.
12. One tube of sterile white vaselin (for the baby).
13. Small and large safety-pins and bank pins.

If there is no nurse available before labor sets in, and it is necessary for the patient to see to the cleansing of the above articles, she may be instructed to pin the douche-pan, rubber sheeting, and hand brushes separately in coarse kitchen towels and boil for half an hour in an ordinary wash-boiler. The articles so boiled are then dried without removing the towels, put away, and not opened until the time of labor.

The soft napkins, if these are to be used for vulvar dressings, should, freshly laundered, be pinned, half a dozen in a package, in coarse kitchen towels and put away until the onset of labor. The nurse is then instructed to sterilize one package at a time by placing in the oven until the outer covering is scorched. For sterilizing instruments and dressings in the oven of the kitchen range, one only requires a thermometer graduated to 200° C., so as to prevent the temperature from rising too high, and to make sure that 140° C. is obtained. The absorbent cotton, the old linen for the baby's eye, and the cheese-cloth are treated in the same way, the latter two being cut up into convenient pieces and sterilized as needed. It is sufficient that the abdominal binders be thoroughly laundered and pinned separately in freshly laundered towels until needed.

Further articles to be in readiness at the time of labor, and obtainable in most households, should include:

1. Arrangements for an abundant supply of hot water.
2. A bowl for vomited matter.
3. Two clean earthen-, agate-, enamel-, or paper-ware bowls for hand cleansing.
4. A clean bowl for the placenta.
5. Three pitchers—one for boiling water, one for cold boiled water, and one for mixing antiseptic solutions.
6. A clean cup or tumbler with boric acid solution, and gauze or old linen wipes for the baby's eyes.
7. A half-dozen freshly laundered old linen sheets to serve as bed-pads.
8. An abundant supply of freshly laundered sheets and towels.
9. A change of nightclothing, warmed, for the mother.
10. A warm blanket to receive the baby.

Of these articles the four bowls, the cup, and the three pitchers should be scrubbed with soap and water and boiled in a wash-boiler, or at least scalded out.

It is sufficient that the old sheets to be used as bed-pads and the usual bed-sheets and towels are freshly laundered.

For special cases, however—for example, breech presentations—it is desirable that half a dozen towels shall be sterilized by boiling or by dry heat in the oven, as described above.

It will be noticed that the time-honored douche-bag and tube have not been referred to, and this is because we do not employ douches except for a positive indication, and further, because we believe these articles should be part of the physician's obstetric outfit, sterilized and cared for under his direct supervision. There is no reason why a patient, be she ever so wealthy, should purchase an instrument which may be needed, and, like other surgical appliances, should be used, only by the physician himself, or under his direct supervision. Dr. Edgar says it is his firm conviction that, both from the clinical and bacteriological standpoint, an intra- or postpartum douche, be it never so carefully administered, carries with it a distinct risk of infection, and involves a responsibility which should not be lightly assumed.

Most, or all, of the articles contained in the above list can to-day be obtained, sterilized in their final wrappers and ready for use, from many of the dealers in surgical dressings, at prices for the outfit varying from four to thirty dollars.

These obstetric outfits, cleansed and sterilized, are usually packed and sealed in a neat box, thus allowing the contents to be kept intact until needed.

The contents of these outfits vary somewhat in detail, but the following list contains the essentials:

1. Agate-ware (square) douche-pan.
2. Sterilized bed-pads.
3. Sterilized vulvar pads.
4. Sterilized absorbent cotton.
5. Sterilized absorbent gauze.
6. Two pieces of rubber sheeting or two ordinary rubber blankets—one for permanent labor bed and the second for the draw sheet.
7. Abdominal binders.
8. Glass and rubber catheter.
9. Scrub or hand brush.
10. Sterilized tape for cord.
11. Sublimate tablets; boric acid, powdered; chloroform; ergot; borated talcum powder; soap; tube of sterile vaselin; safety-pins.

A CASE OF ACETANILID POISONING FROM EXTERNAL ABSORPTION IN AN INFANT.

THOMPSON WESTCOTT reports the following case to *Pediatrics* of June 15, 1899. He believes it is of value as offering another instance of the facility with which acetanilid, when externally applied, may find its way into the circulation and produce toxic effects.

The patient was a female infant, about four months old, the child of a physician, through whose request Dr. Westcott saw the case in the later stages after recovery was already assured. She was a well developed, fat little baby, nursed entirely upon the breast, and during the hot weather of last summer, at Atlantic City, she had suffered severely from the heat, perspiring freely and becoming chafed in the folds of the groin and the creases of the thighs. In some of these localities the intertrigo had become almost eczematous. For the treatment of this condition a dusting powder of pure acetanilid had been ordered and used only once when the alarming symptoms developed. About ten o'clock on the morning of that day the powder had been dusted upon and rubbed over the affected surfaces. The baby was then nursed and put to sleep in her crib. When taken out at 1 P.M., the time for her next nursing, the mother noticed that the skin had a peculiar grayish pallor and the lips were bluish, though the surface temperature did not seem lower than usual. She nursed well, and went to sleep again at 2.30 P.M. The skin was waxy; the mucous membrane of lips and tongue more deeply cyanotic, and the face drawn and pinched-looking. At 3.30 P.M. the appearance was still unchanged, and the child was in a heavy slumber, from which she could not be easily aroused. There was said to be no sweating, and at the time the father first saw her, about 5 P.M., she had improved somewhat in appearance; the cardiac action and respiration were not appreciably disturbed. A few drops of whiskey was then given hourly, and when Dr. Westcott saw her, about 6.45 P.M., the cyanosis was passing off and continued to do so appreciably, as he watched her for fifteen or twenty minutes. She could be roused easily, but was disposed to lie quietly, and readily fell asleep again. The pupils were normal, and the pulse and respiration showed no marked alteration. Recovery was thenceforth uninterrupted, without demanding further treatment. The remains of the powder had not been removed until the father saw her, some four

or five hours after signs of poisoning were first noticed, and when improvement had already begun; so that it seems likely that continued absorption of the drug had been checked by the process of crusting over the exposed surfaces of the derm.

Since the introduction of acetanilid as a dressing for wounds by Harrel in 1893 (*Medical News*, October, 1893) numerous instances of toxic absorption have been recorded. Less frequently have like results followed in more superficial lesions of the surfaces of the skin.

Newton (*Medical Record*, March 7, 1896) records the case of a child with extensive burns of the face, arm, and leg. The central portions of the wounds were sprinkled with acetanilid, between twenty and forty grains being used on five occasions in nine days. When this dressing was applied on two successive days there followed in four hours a condition approaching collapse, marked by extreme cyanosis, weak and rapid pulse, and dilated pupils. Recovery was gradual, cyanosis and coldness persisting for several hours.

Briggs (*Occidental Medical Times*, October, 1895) observed mild toxic symptoms after use of the drug as a dressing for a circumcision wound in an infant a week old.

Carmalt (*Yale Medical Journal*, 1896, p. 131) produced cyanosis in a girl of eighteen years by using the powdered drug upon a profusely suppurating ulcer.

Rook (*Journal of the American Medical Association*, 1896, xxvi, p. 239), records two serious cases—one in a baby four days old with erythematous inflammation of the skin, nates, thigh, and groin, for which several applications of a powder composed of equal parts of acetanilid and bismuth were used. Death occurred within eighteen hours after the powder was first applied. In the second case, an infant two days old, Rook used the drug for erythema of thighs and nates. Intense cyanosis was observed about twenty-four hours after the first and only application, but the child recovered.

Snow (*Transactions American Pediatric Society*, vol. ix, 1897, p. 39) has seen severe symptoms from absorption of the drug from the umbilical stump after detachment of the cord on the seventh day, about sixty grains of the crystals having been used once. Absorption was slow, and symptoms did not appear until after the ninth day, fully sixty hours after the drug was applied.

In the case here recorded the actual amount of surface capable of directly absorbing the drug was very small and in no way comparable to the area of surface exposed in the extensive burns presented by Newton's patient. In both of Rook's cases, however, there was apparently no break in the surface of the skin, but absorption seems to have been nearly as rapid as in cases presenting open surfaces.

The conclusion may be justly drawn that the use of acetanilid as a desiccant dressing with young children, even when there is an insignificant exposure of the derm, is distinctly dangerous to life.

CHLOROFORM SICKNESS.

The *Edinburgh Medical Journal* for June, 1899, contains an article by Ross, in which he says that vomiting, occurring either during or after the administration of chloroform, is associated with circulatory depression, as shown by pallor and lowered pulse tension. A well known handbook states that the faintness is caused by the vomiting; but it may always be noted that in these cases the pallor and lowered tension precede the vomiting, and are therefore not caused by it. Indeed, the administration of brandy—a circulatory stimulant—will check vomiting when it has arisen. Now, patients who have been starved for several hours are, of all, the most prone to syncope, and also, as Dr. Ross has endeavored to show, to vomiting. Hence he believes that chloroform sickness is in part due to circulatory depression. The reasons in brief are: (1) Circulatory depression precedes vomiting; (2) when the operation is prolonged—*i.e.*, where there is more circulatory depression—there is more vomiting; (3) in midwifery where the heart is hypertrophied and where shock is usually little compared to that after operation, there is little tendency to sickness; (4) an empty stomach augments depression and is more commonly accompanied by sickness; (5) a circulatory stimulant (brandy) diminishes sickness.

That another cause is present also is probable: this is, that chloroform acts on the stomach wall as a local irritant and causes emesis. Every patient at some period of the administration swallows some of the chloroform vapor. If the stomach be empty the local effect will be greater. Again, the longer the administration the more chloroform will find its way into the stomach, and the effect will be increased. Further, as will be shown later, the application of local anesthetics and of lavage to the stomach

wall tends to check vomiting; these measures counteract or remove the local irritant. In view of these considerations, it would seem to be right to give the patient his breakfast before administering the anesthetic. It would not be wise to allow him to distend his stomach, but it does not seem to matter how near the administration the meal is given, provided that the anesthetist will not let him be sick on the table.

Certain medicinal measures may be taken to prevent the onset of sickness. First, as already mentioned, we may exhibit local anesthetics. Dr. Maclaren suggested a capsule of cocaine, $\frac{1}{10}$ grain; menthol, $\frac{1}{8}$ grain; and carbolic acid, $\frac{1}{4}$ grain. This was given as soon as the patient came out of anesthesia. Sixteen patients were treated in this way. Of these, four were sick. This equals twenty-five per cent. These patients had been prepared in the ordinary way. As already mentioned, in those similarly prepared, who did not get these capsules, the percentage of cases sick was 35.2. This is a gain of ten per cent. Cocaine alone in capsule was tried also, but the results were not good. Sixteen patients were given one-sixth grain; ten were sick. This equals a percentage of 62.5 sick. The use of pepsin has been recommended by some surgeons as a preventive against chloroform sickness. The result, as Ross has found it, happens to be the same as that obtained when cocaine alone was used. Sixteen got it; ten were sick. It is recommended in doses of two drachms to four drachms ten minutes before the administration of chloroform, and again as soon as the patient can swallow.

If sickness has come on, in many cases it will soon stop; but if it has gone on for a few hours something must be done, as the patient soon becomes worn out. First, on the ground that there is in the stomach a local irritant, we get the indication to remove this, to practice lavage of the stomach, as recommended by Greig Smith. This may be done by the stomach-tube, but much more easily by giving the patient two large breakfast cups of weak tea, without sugar or cream. Almost at once the patient will vomit a large quantity of fluid, and will then often turn round and go to sleep. This seems to be a very good plan for stopping chloroform sickness. It always succeeds. It is liked by the patients. The remedy can be got anywhere.

A second indication is the exhibition of stimulants, on the ground that vomiting is due partly to faintness. Brandy in teaspoonful doses has often a very beneficial effect. Dr. Ross thinks, however, that it is only temporary, lasting two or three hours.

Morphine is recommended in many books; possibly its effect is deceptive. A full dose of morphine will of course stop vomiting, because morphine checks peristaltic movement. But when the effect of the drug passes off, the condition of vomiting is apt to be reestablished. Indeed, it is common for patients after operation, to whom morphine had been given for pain, and who had not been sick prior to its exhibition, to vomit on awakening from the morphine.

There is a class of cases where the patient continues for some days to be sick once or twice a day. It will be found that an evacuating enema will often check this. Sinapisms over the epigastrium are in all cases useful. Creosote in minim doses was tried in four cases; it did not appear to be of advantage in any of them.

THE TREATMENT OF RENAL DROPSY.

NESTOR TIRARD in the *Edinburgh Medical Journal* for June, 1899, tells us that in the treatment of renal dropsy due to acute nephritis there are three dangers to be kept well in mind. These are: (1) The immediate danger of suppression of urine; (2) the danger of interference with respiration and with the circulation; (3) the more remote danger of chronic renal changes, which will in all probability result from the accumulation of effused blood around the capillaries of the glomerulus and within the renal tubules.

In considering these three sources of danger it will be found that the most satisfactory treatment is that by which the dropsy is reduced most rapidly; and indeed, though Dr. Tirard has headed this paper "The Treatment of Renal Dropsy," he says it is necessary to remember that to a large extent in the treatment of renal dropsy must be included a consideration of the general management of acute and chronic nephritis.

The treatment of the dropsy of acute nephritis must include measures which will meet the threefold dangers above indicated; and since the most imminent danger is that resulting from suppression, this demands the first consideration.

To obviate the dangers of suppression, it is necessary to restore the interrupted functions of the kidney as early as possible, so as to favor the renewed elimination of nitrogenous waste. Since, however, the arrested

action is associated with extreme engorgement of the renal vessels, any measures calculated to increase this engorgement must be deprecated; and our efforts must primarily be directed towards the relief of the results of the engorgement, and at the same time to the removal of the existing overdistention of the renal vessels.

The three main channels for the removal of fluid from the blood-vessels are the skin, the intestine, and the kidneys; and their respective excretory functions can be stimulated by diaphoretics, by hydragogue purgatives, and by diuretics. The employment of diuretics is contraindicated in the early stages of acute nephritis, since the majority of these remedies would cause an increase in the caliber of the renal vessels, and would thus promote the engorgement which it is desirable to relieve. Hence, so far as remedial measures are concerned, at the commencement of treatment, we are almost entirely dependent upon diaphoretics and hydragogue purgatives.

Dr. Tirard says he is well aware that some observers, and notably Sir William Roberts, advocate the early use of drugs intended to render the urine alkaline, hoping in this way to prevent the coagulation of blood or of albumin within the tubules. When such coagulation arises it undoubtedly adds largely to the risks of the subsequent development of chronic nephritis, and coagulation is certainly more likely to occur when the urine is highly acid. It has also been urged that not only remote but also immediate dangers are diminished by this form of treatment, and Sir William Roberts states that in no instance, where the urine has been rendered alkaline during the first week of the complaint, has he observed the more severe uremic symptoms or secondary inflammations. To effect this object it is necessary to employ either potassium acetate or citrate, or the salts of sodium, which are converted into alkaline carbonates within the body. These compounds have, however, a powerful diuretic action, and Dr. Tirard considers, therefore, that their use before the initial engorgement is relieved is not devoid of risk. They are valuable when an increase in the urine eliminated and a decrease in the blood-red color indicate that the primary engorgement has subsided, and that the circulation through the kidney is again tending to the normal condition; but so long as the urine is blood-stained and scanty, he prefers to rely upon other measures for the relief of the more urgent symptoms.

By securing rapid action of the skin we are generally able to insure diminution of dropsy, and thus afford relief from severe and persistent headache, which is so frequently a prominent symptom. The action of the skin may be favored by baths, by drugs, and to some extent by copious draughts of liquids. The measures adopted must to a great extent be determined by the circumstances of the patient, and by the amount of nursing assistance which is available; but a little ingenuity will readily overcome difficulties, and permit the early employment of almost any desired form of treatment. Rapidity of action may often be secured by the use of the hot-air or vapor bath, and it is in this connection that the greatest amount of ingenuity will be required. In a well-appointed hospital it is easy to administer a vapor bath, since the necessary apparatus is always at hand. This consists of a large steam-kettle, which is placed at the foot of the bed, with its tube projecting a short distance through a wooden partition into the space at the foot of the bed. The bedclothes are raised around the patient by a large cradle, similar to that employed in the surgical treatment of fractures of the lower extremity. Two of these cradles, if necessary, may be used, so as to increase the space surrounding the patient, and the cradle is then covered with blankets which are closely fitted round the patient's neck, so that his body is completely surrounded with warm, aqueous vapor. It is necessary to fix the tube of the steam-kettle in a position where it can by no possibility come into contact with the patient's limbs, since otherwise considerable damage may be done, the cutaneous sensibility of dropsical patients being so greatly reduced that severe blistering may result before there is any complaint of discomfort.

In cottages the vapor bath may sometimes be employed by seating the patient in a chair, under which a lamp with a large wick is allowed to burn, the patient being surrounded with blankets. This proceeding is, however, extremely hazardous, as there is danger of the lamp flaring and setting light to the woodwork, or to the bedclothes. But, independently of this danger, this form of vapor bath is objectionable, since it requires a patient to be placed in an erect posture when, in all probability, he is in a condition of extreme weakness; and dropsical patients are notoriously heavy and difficult to move. The vapor bath, however, may, with a little ingenuity, be easily arranged, even in a cot-

tage; the bedclothes may be temporarily raised sufficiently by low stools, such as are to be found in most country cottages, or, if these are not available, a few barrel hoops and a pole may be tied together so as to form a good imitation cradle. Yet even then there is the difficulty of arranging the lamp with safety, and in general it is felt to be easier and safer to promote the action of the skin by the use of wet packs or by warm baths; of the two, the wet pack is far more easy to manage, since it involves no apparatus, and entails less movement of the patient. The wet pack may be either hot or cold, and it does not appear to be of much importance which form is adopted. If the cold pack is employed, it is only really cold at the moment of its application, since, as a rule, the cold speedily excites a strong reaction which serves to warm the sheet and to surround the patient with warm vapor. On the other hand, the hot pack may sometimes be applied injudiciously warm, and thus cause pain, or even damage to the skin by scalding, or it may produce a sense of cold as the temperature falls more nearly to that of the body; but, as in the case of the cold pack, the resulting vapor which envelops the body will speedily be formed.

In applying the pack, the patient should be completely undressed, or should only wear a thin cotton night-dress, and the wet sheets should be wrapped round and then quickly covered with successive layers of blanket, so as to envelop the patient completely with the exception of the head, care being taken to leave no portion of the damp sheets projecting beyond the blankets. The time spent in the wet pack must, to some extent, vary according to its effects. Twenty minutes or half an hour is usually sufficient to induce copious perspiration, and when the action of the skin has been well started, continued diaphoresis will follow after the removal of the pack. When the sheets are removed the surface should be quickly dried with warm towels, and the patient should again be enveloped in warm blankets.

If, however, there are facilities for employing a warm bath, and if the patient is sufficiently well to be able to move readily from the bed to the bath and back again, the bath may be used, the water being at a temperature which can be tolerated with comfort by the hand and arm of the nurse; but after the bath it is desirable to promote further diaphoresis by wrapping the patient in warm blankets, directly after he has been quickly dried.

When any one of the foregoing measures is being adopted, free perspiration may be encouraged by allowing the patient to drink copious draughts of water from time to time, while further action may sometimes be encouraged by the administration of full doses of liquor ammonii acetatis. It frequently happens, however, that during the first or even the second employment of any of the above measures, the skin does not act very satisfactorily, and the practitioner must then be guided by his judgment and by observation of the patient as to further treatment.

In young adults, when the dropsy is the result of acute nephritis, it is ordinarily advisable to employ hydragogue purgatives, and to repeat the use of the hot bath or other diaphoretic measure some twelve or twenty-four hours later. On the other hand, when the subject affected by renal dropsy is a man of middle age or of advanced years, it will ordinarily be found that if the bath fails to afford immediate relief, it commonly produces much headache, and, indeed, it may have to be discontinued when the skin does not act, or acts but feebly. Since, however, there are great advantages in the free diaphoretic action of the skin, it is desirable in some cases to endeavor to stimulate diaphoresis by the hypodermic use of pilocarpine. It is sometimes found that relatively small doses of the pilocarpine nitrate will suffice to initiate diaphoresis, which can then be increased by the use of the wet pack or of the hot bath. This drug, however, requires to be employed very cautiously, since although by its use considerable diaphoresis may be produced, it also has the power of promoting excessive action of the salivary glands, and apparently also increased secretion from the bronchial mucous membrane; therefore it is not to be employed with patients who are so far comatose that they are unable to expectorate, nor should it be used with those who are already suffering from edema of the lungs, or when there are indications of cardiac weakness.

If diaphoretic measures afford little relief, or if the relief appears to be purchased at the cost of great suffering, it is well to continue the use of hydragogue purgatives, such as the compound jalap powder of the Pharmacopœia, or of a mixture of jalap powder with scammony powder; and Dr. Tirard has observed that the action of these hydragogue purgatives will frequently be followed by considerable diminution of dropsy, and by gradual increase in the amount of urine that is passed.

In the dropsy of acute nephritis the use of diaphoretic measures is scarcely as imperative as it is in cases of dropsy associated with subacute attacks occurring in the course of chronic nephritis. In acute nephritis, especially in the form resulting from scarlet fever, free purgation is generally followed by rapid diminution of dropsy.

STATES OF OVEREXCITABILITY, HYPERSENSITIVENESS, AND MENTAL EXPLOSIVENESS IN CHILDREN, AND THEIR TREATMENT BY THE BROMIDES.

CLOUSTON writes on this subject in the *Scottish Medical and Surgical Journal* for June, 1899. After discussing the general conditions named, Dr. Clouston says that so far as his experience of drugs goes, he has found the bromides by far the most effective in restraining normal nerve cell action from assuming pathological forms. They must be given judiciously and with reference to the age of the patient, the acuteness and the nature of the symptoms, and the effects of the drug in each case as seen by a skilled observer. They must often be given fearlessly in large doses up to the point when the symptoms of bromism are beginning to show themselves. One thing is certain, if they are to do any real good, they must be given for long periods. A few doses or an intermittent course of them at first is of little good, and when they have done their work they must be gradually discontinued and not suddenly stopped. The general health, the weight, and the progress of the child's nutrition must be most carefully observed all the time they are given. Dr. Clouston does not advocate bromide treatment alone—far from it; he gives tonics and food medicines at the same time as the bromides, and the diet must receive never-ceasing attention. He thinks milk will be found the sheet-anchor in dieting all such neurotic children. Environment, too, fresh air, suitable amusements, companionship, control, employment must be looked to, and the schoolmaster must be regarded for the time as an aid to treatment and so under the doctor's orders.

Such an explosive brain need not remain uneducated, but it must receive its education in a physiological and medical fashion. Education must submit to be one of the factors that go to develop such an organism on sound lines, so that the greatest possible result of work compatible with health and happiness may be attained in after life. In a few cases, if there appear very acute phases of the illness, a few grains of sulphonal (from five to ten) twice a day, combined with the bromides, Dr. Clouston has found very useful by accentuating the effects of the latter. The effect we aim at is to diminish undue cell catabolism and reactiveness in the cerebral cortex without interfering with brain anabolism or general body development. And we keep in mind that such effect must be carefully watched so that it does not go too far.

NOTES ON THE TREATMENT OF THE DISEASES OF THE NERVOUS SYSTEM.

GRAHAM BROWN, of Edinburgh, writes in the *Scottish Medical and Surgical Journal* for June, 1899, upon this theme. He first deals with the pathology of syphilitic nervous disease, and then goes on to point out that the poison of syphilis frequently attacks the nervous tissues and produces far-reaching effects. In combating these lesions the antisyphilitic treatment requires to be of the most thorough kind, and it is usually advisable to employ both mercury and iodide of potassium.

Let us take for an example some specific cord affection such as syphilitic myelitis. How are these remedies to be administered in this case? Now, it is no doubt true that the action of mercury can be attained by administration by the mouth. But in doing so, if we are to obtain the full effect of the drug, we have to give doses which are very liable to produce gastrointestinal irritation and salivation. So much is this the case that if we give even so mild a preparation as gray powder for any length of time, we have to combine some opium with it so as to control its action on the bowel. This addition of opium is, in Dr. Brown's opinion, inadvisable, and yet we must secure a thorough mercurial action. He believes that in these cases of syphilis of the nervous system the mercury should not be given by the mouth. Two other methods are open to us—we may have the mercury rubbed through the skin, or may give it hypodermically. Of these, the method by friction is usually to be preferred.

In such a case, then, as we have supposed, if we resort to the method of inunction, directions should be given that from thirty to sixty grains of mercurial ointment be rubbed into the skin daily, a different part of the body being selected on each occasion. The patient may begin, for example, with

the right arm, then the left arm, the right thigh, the left thigh, and then *da capo*. A square of linen rag is taken, sufficiently large to cover amply the area of skin to be rubbed, and on it a portion of the quantity of ointment to be used is placed. With this the patient is instructed to rub the skin vigorously, adding from time to time a little more of the ointment until the whole quantity has been rubbed in. This operation should take from ten to fifteen minutes. Thereafter the square of rag is to be laid over the skin surface, covered with a layer of cotton-wool, and retained by means of a light bandage. The inunction is to be made at night, and the patient sleeps with the rag and bandage so adjusted. In the morning the vigorous application of soap and hot water will remove any traces of unabsorbed ointment.

In certain continental watering-places, where the treatment of syphilis is specially attended to, the inunctions are made by means of a glass instrument, shaped like a handle, and bearing on one end a hemispherical surface of ground glass, with which the ointment is rubbed in. The inunctions are made by a skilled rubber, about an hour after the patient has left a warm bath. Dr. Brown thinks, however, that the method of inunction which he described first is the better for such cases as those we are now considering.

Such inunction as this should be made daily for a fortnight, or if possible three weeks. There should then come a pause of a week, and, if no stomatitis has developed, a new series of frictions may then be entered on. After the second series of inunctions is completed a pause of a month's duration is advisable, after which the treatment should be recommenced. To be complete, these series of inunctions should extend (with intervals of increasing length) over a period of three years. The necessity of taking care of the teeth and gums during such treatment as this is well known, and it is advisable to use a mouth-wash of chlorate of potash.

While Dr. Brown believes that as a rule the method of inunction is to be preferred, there are some cases in which it may be advisable to administer the mercury hypodermically. When the symptoms are severe, and the need for mercurial action is pressing, then the subcutaneous method, which is more rapid and energetic in action than inunction, is to be preferred. It is not, however, without its inconveniences. It is painful, and if due care is not taken much induration and even abscess formation may result.

The syringe used must be carefully sterilized. The needle, which should be of platinum, is to be heated in a flame just before use, and cooled in carbolic oil. The injection is best made in the gluteal region, and the solution should be injected deeply into muscular fiber. The skin is to be carefully cleansed before the operation.

Various preparations of mercury have been made use of for hypodermic administration. Gray oil has been much used, as well as calomel in vaselin, but neither of these preparations is to be recommended.

The red iodide (mercuric iodide) is frequently employed for injection. With the aid of a little iodide of sodium it is readily dissolved in the proportion of one grain in sixty-four minims of distilled water. Of this solution from two to six minims may be injected. An even better preparation is that of Panas:

Mercuric iodide, 0.4 gramme;
Sterilized olive oil, 100 Cc.

The oil is purified by washing with distilled water, and, after separating, it is again washed with absolute alcohol. It is finally sterilized. Of this solution one cubic centimeter (nearly seventeen minims) contains about four milligrammes (one-tenth grain) of mercuric iodide.

Delpech's solution for hypodermic use, which is much employed in Paris, consists of an ammoniated peptone of mercury of the following composition:

℞ Hydrarg. perchlor., 10 grammes;
Peptone (dry), 15 grammes;
Ammon. chlorid., 15 grammes.
Misce.

This preparation is to be dissolved in distilled water, or preferably in glycerin, in the proportion of 40 centigrammes in 30 grammes.

There is, finally, sozo-iodol-mercury, a preparation which has recently come into some vogue for intramuscular injections in syphilis. Of this substance 2½ grains is to be dissolved, along with five grains of sodium iodide, in 100 minims of distilled water. The resulting solution may be given hypodermically in doses of ten minims.

During the greater part of this period iodide of potassium should also be given, the dose depending on the individual, but being in any case as large as can be borne. It may be begun with thirty or forty grains in the day, and rapidly increased as far as seems advisable in the particular case being treated.

In cases in which the iodide has to be ad-

ministered for long periods, use may be made of a preparation called iodalbacid by its discoverer, Dr. Blum, of Frankfort. It is an iodine-albumin (analogous to iodo-thyrin), formed by the action of iodine on moist albumin. When taken internally it readily breaks up, liberating its iodine (of which it contains about ten per cent), and not producing the disagreeable effects sometimes seen after the exhibition of potassium iodide. Iodalbacid should not be used in cases in which a rapid action is desired. In these iodide of potassium is to be preferred. But for the more chronic cases it has been found very useful. It is freely soluble in water, but is best given either in cachets or in the form of tablets. The quantity which should be administered daily is from three to six grammes (45 to 90 grains) in divided doses.

THE TRANSPLANTATION OF A HUMAN OVARY.

Dr. JAMES H. GLASS, in the *Medical News* of April 29, 1899, records an interesting case. A young woman who had had a double oophorectomy performed some two years previously applied for relief from the train of symptoms, lapse of sexual instinct, mental depression, insomnia, giddiness, palpitations, heat flushes, pelvic pains, *et hoc genus omne*, which are not uncommon sequelæ of that operation. General treatment proving of no avail, on May 11, 1898, ventrofixation was performed. A second patient, aged seventeen years, married, having suffered serious injury during parturition, which had resulted in such deformity that future child-bearing would inevitably entail Cæsarian section, it was decided to render her sterile by removal of the tubes and ovaries. On May 14 both patients were, with their own consent, anesthetized together, with the view of transplanting the healthy ovary about to be removed from the one woman into the peritoneal cavity of the other. The healthy ovary, immediately on removal, was placed in gauze kept moist with warm normal salt solution. When the first operation was completed, the vagina in the other patient and the connective tissue down to the cervix were incised. The latter was then stripped up to the peritoneum with the finger, and this membrane carefully raised from its attachments to a point approximating the normal position of the ovary. Oozing was controlled by compresses of hot saline solution, the ovary anchored in position by closing, with two tiers of fine cumol catgut, the canal through which it had been introduced, and the vagina lightly packed with silver gauze. The recovery was uninterrupted. After six days a condition of sexual erethism lasting for several days and accompanied by erotic dreams occurred. After sixteen days menstruation began and lasted two days. It was then absent until December, when it again appeared and was normal in every way. Eight months after the transplantation the patient had regained her equilibrium, and was apparently quite well and healthy. The value of this observation appears to be considerable; for while much of the patient's relief may possibly be attributable to the ventrofixation, the return of the sexual instinct, the recurrence of the menses, and the improved metabolism would appear to be undoubtedly due to the transplantation of the ovary.—*New York Medical Journal*, May 6, 1899.

A SIMPLE METHOD OF REDUCING DISLOCATIONS OF THE SHOULDER BY MANIPULATION.

MILLER (*Scottish Medical and Surgical Journal*, May, 1899) contributes this paper because, in the first place, he finds that on all hands there is a tendency to describe and speak of Kocher's method as if it were the only method of reducing dislocations at the shoulder-joint by manipulation. In the second place, he has for more than twenty years employed and taught a method which is simpler, and in his hands has proved unfailing. Thirdly, a few months ago a country practitioner told him that he had reduced a dislocation of the shoulder without chloroform, in a strong man, by this method, which he remembered to have seen the author employ in the Infirmary. The dislocation was a day old, and had resisted attempts made with the heel in the axilla.

In the dislocated position the articular surface of the humerus is completely displaced from the glenoid. When, however, the arm is lifed upwards into a position at right angles to the body, the smooth articular surface of the humeral head is brought very near the smooth glenoid surface. The two may even be brought slightly in contact, when, one can imagine how easily, the head of the humerus may be made to glide back into position. Many authorities mention how mere elevation of the arm has reduced dislocations that were very recent. Perhaps some spontaneous reductions may occur in this way.

Another result from this elevation of the arm is that the locking of the neck of the humerus on the edge of the glenoid is undone. This being so, it requires only slight internal rotation of the humerus in its long axis to make the head of the bone glide into its normal situation. Dr. David Waterston, in a recent pamphlet on Kocher's method, extracted from the *British Medical Journal*, says that reduction is prevented by the locking of the neck of the humerus and glenoid edge described by Caird, and that it is the *inward* rotation that "disengages the indent from the tip of the glenoid."

The experience of the author is that reduction by this method occurs without any snap or jerk, and that often the operator is unaware of the reduction (as also the patient) till the filling out of the deltoid region and free movement of the joint prove the reduction to be complete.

The author describes the process by manipulation more exactly. Suppose a recent case. The patient being seated on a chair, the surgeon stands at the injured side (say the right) and takes the arm in both hands, one (the left) being above the elbow, the other (right) above the wrist, the arm being bent to an L at the elbow. An assistant stands at the patient's other side and steadies the scapula with both hands.

The surgeon then (having of course made sure that there is a subcoracoid dislocation) gently and slowly elevates the arm, making traction outwards from the body, at the same time assuring the patient that what he is doing will not be very painful, and that it is not the actual reduction but merely a preliminary. If the patient should resist, then the surgeon may wait for a while, or administer an anesthetic.

When the patient has ceased to resist the arm will come slightly towards the surgeon; then is the time to rotate the humerus by dropping the hand, and the head of the humerus will glide into position. If the dislocation has been "out" for some time —a day or two—then the patient should be laid on a table, and an anesthetic administered. The same procedure as above is then gone through. If reduction does not occur at once, the humerus may be freely circumducted, so as to break down any adhesions that may have formed, and to widen the opening in the capsule.

The author repeats here that he has never failed by this method, except in one or two cases in which every other means failed and the knife had to be called into requisition. On the other hand, this method has succeeded in his hands and in others' when other procedures had failed.

In one case he succeeded single-handed. The patient was a stout old man. The author found him in bed. He turned him on his sound side, got up on to the bed and stood over him, then grasped the dislocated arm by the elbow, and extended the arm from the side. The head of the humerus quietly glided into its place, much to his satisfaction as well as his patient's.

Reduction may be aided sometimes by a maneuver which is recommended by many authorities, viz., pressure in the axilla, with thumbs or fingers on the head of the humerus (Avicenna's method).

VAGINAL ABLATION IN PELVIC INFLAMMATIONS.

PRYOR (*American Journal of Obstetrics and Diseases of Women and Children*, May, 1899) enters an earnest plea, backed by one hundred operations without a death, for the vaginal operation in pelvic inflammations. Vaginal extirpation of the ovaries, tubes, and uterus is accomplished by the formation of four pedicles. These pedicles are secured by forceps and slough; therefore they must be treated extraperitoneally. The very essence of the vaginal operation is the extraperitoneal treatment of the stumps. The vaginal mucosa is incised at the posterior fold, over the point where the peritoneum is reflected from the uterus. Laterally this incision reaches the level of the sides of the cervix. The anterior incision should be made, not in the dense cervical tissue, but in the loose reticular tissue between the uterus and the bladder. Both the anterior and posterior incisions are crescentic in shape. Their ends do not meet, but between them a strip of mucous membrane, an eighth of an inch in width, is left. The value of this will be appreciated at a later step. The author finds that in most cases he can bore into Douglas's pouch with the finger, and always either does this, or at least dissects the tissues up as high as he can, generally using the fingers. In separating the bladder from the uterus he finds assistance from the intra-uterine traction forceps, which fix the uterus, whether the dissection is effected by means of the finger or by toothed forceps and scissors.

In this, the first stage of the operation, the author seeks no more than the liberation of

the uterus from its normal attachments, anteriorly and posteriorly. This being accomplished, he introduces his finger along the middle line of the posterior surface of the uterus as high as can be reached. In doing this attached organs are liberated only so far as will enable him to make this track. The author studiously avoids any attempt at freeing the adnexa at this stage. So far there has been no hemostasis. The bleeding which occurs is slight and comes from small anastomotic branches only. The traction forceps are now withdrawn and each lateral angle of the cervix is seized with bullet forceps. The closed, blunt scissors are inserted into the uterus to determine the direction of its canal. The anterior wall of the uterus is then split as high up as can be seen. An assistant holds up the bladder with a narrow retractor, and the author seizes each side of the cut in the uterus with Péan's toothed traction forceps. These are twisted outward, and as this is done more of the anterior wall of the uterus rolls from beneath the bladder. This is also split in the middle line, and other traction forceps are applied upon each side of the cut in the uterus as high as its angle. This progressive median section is repeated until the cornua uteri appear. When this occurs the author withdraws the perineal retractor and passes the grooved director up behind the uterus in the track his finger has made for it. The assistant not only depresses the perineum with this, but he also draws the uterus forward, so that the groove in the director may be both felt and seen above the fundus. Into this groove the author inserts the bistoury and accurately splits the uterus along the center of its posterior wall. The organ is now in halves. Still no attempt at hemostasis has been made.

It is well to consider what has been accomplished thus far. After entering the posterior cul-de-sac, an attempt to liberate the adnexa would be most difficult because of the presence of the uterus and because of the *bilateral fixity*. Further, any very general liberation of the adnexa, intestines, or omentum would only permit them to fall between the grooved director and the uterus, and thus render them liable to injury when the posterior surface of the organ is split.

After splitting the uterus the bilateral fixity is abolished, and each half and its adnexa are to be dealt with separately, free from any attachment to the other.

A pair of traction forceps is fastened into the fundus of each segment, and into each half of the cervix is locked a bullet forceps. The right half of the uterus is shoved up into the pelvis and the left is drawn down. This latter, being free from all fixity upon the right, will swing from beneath the bladder, so that in most cases its cavity will look directly out and the entire half of the uterus be outside the body, the cervical portion being over the perineum, and the fundal beneath the pubes. The anterior and posterior retractors are withdrawn, and no instruments pass into the vagina except the two traction forceps which have hold of the right half of the uterus. While the left segment is held outside the body, the left hand is introduced into the pelvis up to the thumb, or for a distance of nearly five inches. This will enable the index-finger to reach the pelvic brim in all cases.

Bearing in mind that whereas the hand is to one side of the uterus, it is also upon the posterior face of the left broad ligament, the author begins the separation of the adhesions. As manual dexterity controls the ease with which this can be accomplished in all suprapubic work, so also it determines the facility with which the adherent ovary and tube may be liberated through the vagina. The author states that if he were to compare the two methods, he would say that it is easier to free through the vagina all organs which are adherent below the pelvic brim. The attachment of omentum and intestines to the adnexa can be severed either by the fingers or by scissors. In the latter act it will be but necessary to hold up the bladder with a retractor. The adnexa will be found most closely applied to the posterior surface of the broad ligament and to the lateral pelvic wall. Inasmuch as the adventitious union is between the peritoneal surfaces, the separation of the agglutinated tissues proceeds along the usual "plane of cleavage."

If the dissecting fingers evacuate a pus pocket, the author states that he is secure in the conscientiousness that its contents will escape below and will not enter the higher abdominal cavity. If such an event occurs—and many pus tubes are exceedingly friable—he withdraws his hand, cleanses it, and scrubs the pelvis dry. Very rarely in these pus cases will it be found that the intestines are sufficiently free to prolapse into the vagina during the operation; but in such an event they can be kept in place by a gauze pad. The author has seldom seen a knuckle of small gut during his operations. In fact, not often is the small intestine adherent to either

the uterus or tubes, but all false attachments of the coils of small intestine are interintestinal. The author states that in his vaginal work he is well beneath all such complications and they are avoided.

When he has liberated the left adnexa he returns them and their half of the uterus into the pelvis, the uterus being under control by traction forceps. He now introduces the right hand into the pelvis and liberates the right adnexa. This is accomplished in exactly the same way as upon the left side, only he is careful to determine whether the appendix vermiformis is attached to the adnexa. If it is, anterior and posterior retractors are introduced and it is inspected. If the appendix is merely adherent it is carefully liberated without doing damage to it. By no means are all adherent appendices diseased.

After freeing the right adnexa he draws them from beneath the bladder and grasps the upper border of the broad ligament with forceps. This is applied from above downward, so that the strength of the forceps is upon the ovarian artery, and the point of the forceps down. The broad ligament is now cut to the point of the forceps, and another forceps is applied in the same way to the uterine artery. The right half of the uterus and right adnexa are removed. The two forceps are dropped and the left adnexa and half of the uterus similarly treated. When liberating the adherent adnexa the author appreciates the importance of leaving a narrow strip of vaginal mucous membrane between the anterior and posterior incisions, for, did he not do so, he might possibly rip up the cervix from the pelvic floor and thus tear the uterine artery by the forcible introduction of the hand into the pelvis. He emphasizes one feature of this method of operating—namely, the absence of all attempts at hemostasis until the two sets of adnexa are entirely free. Otherwise, in certain cases of small vagina, the forceps would be very much in the way, and in rotten tissues there would be danger of tearing them off the pedicles they hold.

Attention is also called to the method of applying all the forceps from above downward, which insures their being, together with the stumps they hold, in the vaginal vault. When the forceps are dropped those on the ovarian arteries fold the top of the broad ligament over the pairs on the uterines, and in this way the latter are prevented from touching the bladder. As the forceps are applied upon each side the halved uterus is drawn to the opposite side, in this way increasing the distance between the cervix and the ureter.

The pelvis is now wiped dry and a gauze pad is introduced. The table is tilted into the Trendelenburg position, and a careful inspection of the pelvis made for bleeding from aberrant vessels. Upon each side a strip of iodoform gauze is introduced between the forceps and the vagina. Each set of forceps is held aside by long, angular retractors, and the vagina is filled with gauze. The dressing is made to project above the points of the forceps at all points, and is snugly applied—ten or a dozen pieces, each a yard long and four inches wide, are usually introduced. The patient is lowered into the horizontal position and a self-retaining catheter introduced. The sphincter ani is dilated, for the bruising of the perineum causes spasm if the sphincter remains active, and the bowel should be open for the early passage of gases and feces.

The features of the operation, as performed by Pryor, are the liberation of all the adherent organs before any hemostasis is attempted, and the application of the pelvic Mikulicz dressing. The first is essential to the formation of the pedicles, so that they may be strictly extraperitoneal, while the latter insures the retention of these pedicles in their proper position while isolation of the field of operation and its sterilization are accomplished by the dressing.

A certain mortality from this operation is found abroad to be due to late infection occurring after the forceps are removed. This is entirely due to a disregard of the possibilities of the pelvic Mikulicz. In the first place, this dressing drains and sterilizes the pelvic pouch.

Attention is called to the fact that no pins are used to fasten the stumps outside the peritoneal sac in this operation, as is done in the old extraperitoneal suprapubic hysterectomy, but this is accomplished in vaginal ablation by the forceps for two days only. When these are removed the ovarian stumps, not being held, have a tendency to snap back into the peritoneal pouch, and Pryor is convinced that a part of the European late mortality is due to this. The application of the pelvic Mikulicz prevents this. As the first essential to a successful vaginal ablation was found to be the formation of the stumps so that they would be extraperitoneal, so the second embraces the proper application of

dressings which will maintain these stumps outside the pelvis while the union between the bladder and rectum is forming.

Another attribute of the method of forming the stumps, not less important than the one mentioned, is that by it the forceps cannot touch any part of the pelvic contents, and hence fistulæ are not seen to follow the method advocated. Apart from the sentimental objection to an abdominal scar which is held by some women, there are several real objections to making a section of the abdomen in these pus cases. In removing pus foci through an abdominal incision they must be dragged through a cut which it is expected must close by primary union. Even to-day occasionally an abdominal wound or stitch-hole suppurates.

THE TREATMENT OF INGUINAL HERNIA IN CHILDREN.

ECCLES (*British Medical Journal*, May 13, 1899), after a brief discussion of the anatomy of hernia in children, states that when one has to deal with a large number of congenital inguinal herniæ the uselessness of the skein of wool truss becomes only too apparent. The arguments for and against its use are: For—(1) Its simplicity; (2) its cheapness; (3) the ease with which it can be changed; (4) that it can be worn in the bath, and a dry one applied immediately afterwards; (5) that no attention is required except at the moment of changing. Against—(1) It is inefficient, and therefore a false security, except in the simplest of cases; (2) it exercises little if any pressure directly over the hernial apertures, and thus no likelihood of a permanent cure is gained; (3) it may cause excoriation.

The arguments for the spring truss are: (1) It is very efficient in retaining the viscera within the abdomen; (2) it exercises pressure directly over the inguinal canal, and thus tends to bring about obliteration of the processus vaginalis, and to enhance the prospect of a lasting cure.

In discussing the application of a spring steel truss to an infant, it may at once be conceded that an ill-fashioned instrument, covered with impure red composition rubber, one which is either too small or too large, or one that is improperly adjusted, will inevitably cause trouble. On the other hand, a well made truss, covered with pure rubber, with no seam that is next to the skin, of the right size, and properly adjusted, but seldom causes much inconvenience.

The method of measurement for an inguinal truss for an infant or young child is the same as that for an adult—that is to say, the tape should be carried round the pelvis obliquely, at the base of the sacrum behind, half-way between the crest of the ilium and the top of the great trochanter at the side, and above the symphysis pubis in front.

For a single truss the actual number of inches thus obtained is the correct size; for a double truss it is often well to add an inch to this measurement, because a double truss does not stretch at all. The adjustment of a truss at so tender an age is of the utmost importance. The inguinal canal in infancy is practically non-existent, since the deep abdominal ring lies almost directly behind the superficial, but both, it must be remembered, are placed above the level of the pubic bone, and therefore of the symphysis. In children the upper part of the symphysis pubis is considerably higher than it is generally supposed, or than it appears to be. There is, however, a distinct guide to the level required, for every child, and particularly a well-nourished one, presents a curved line running across the lower part of the abdomen, known as the fold of Venus, which accurately indicates the upper limit of the pubic bones.

The important fact to be borne in mind is that the whole of the pad of the truss must lie above this line, for if it be placed below it, the soft parts upon which it will then impinge must of necessity be compressed between the pad and the unyielding bone beneath; and, moreover, the pad would in no way tend to retain the intestine, seeing that it is placed altogether below the site of the rings through which the protrusion passes. Very soon such pressure would cause irritation, and then excoriation; but this untoward result can be entirely avoided if the truss is worn at the proper level, where it will press only on the soft parts. Here, moreover, it has but little tendency to shift its position, or to be displaced by the intentional acts of the patient.

A truss thus carefully adjusted must be worn by the child continually, day and night, sleeping and waking, crying and peaceful. Temporary removal is necessary for the purposes of cleanliness, and when this is needed it should be undertaken with the patient recumbent, and when left unguarded by the

truss, the hernial aperture should be protected by the nurse's finger or thumb.

It is remarkable how rapidly, often within a few weeks, after the application of a truss of a proper form for a congenital inguinal hernia, descent of the viscera ceases, but such would soon recur if the truss for any reason were discontinued. Permanent closure of the processus vaginalis will be obtained in the majority of cases only after a continuous action of the pressure of a spring truss over a period of some years. A cure, therefore, can be safely predicted; but the truss should not be discarded until the child has reached the age of at least three years.

Treatment by trusses should be begun at the very earliest possible moment, as for each year of life which is passed without the use of the instrument there is a corresponding diminution in the probability of a permanent cure. It is highly fallacious to aver that a hernia in an infant will become spontaneously cured without active treatment by truss pressure. Such a result is so extremely rare that it must be disregarded in practice.

Congenital inguinal herniæ in female infants are even more likely to be cured by treatment than those in male subjects. In certain instances young boys may develop very large scrotal herniæ, the outcome of neglect, which may not be efficiently controlled by an ordinary truss. In such cases a rat-tail or a forked-tongue truss will be required. In all cases of hernia in the young, attention should be paid to the encouragement of muscular development by means of calisthenics.

There are two chief arguments against a radical operation with a view to a cure in the case of young children, say before three years of age. One is the strong probability that a spontaneous cure will result, provided efficient truss pressure is secured, and a proper diet is given the patient. That such a happy termination does frequently ensue is, the author thinks, the experience of most practitioners, and it is certainly not common to be given the history of a hernia having been present in infancy, then an apparent cure, and afterwards a relapse in later life. This fact would seem, therefore, to be a valid argument against the necessity of an operation.

The other argument that is put forward is that the wound formed so near the urinary apparatus in a child is very liable to become septic. The author does not think that this has much weight, for it is comparatively easy to prevent infection if the wound is made, as it should be, in the inguinal region and immediately closed with a collodion dressing of small size. It is a great mistake in all operations about this region in children to apply a bulky dressing, for such is much more liable to become contaminated than is a small one.

The following are the cases in which an operation may be advised:

1. Where a child is being properly fed, but in whom a hernia after a fair trial is not retained by a suitable truss, so that there is little or no chance of a spontaneous cure.
2. Where part of the contents of the sac are irreducible.
3. Where a truss has been worn for at least three years, but with no apparent cure of the protrusion.
4. Where a child has reached the age of at least three years, but has never worn a truss.
5. Where a herniotomy has to be performed for strangulation.

Now, it is unusual for a hernia in a child not to be adequately controlled by a proper truss. It is rare to have irreducible contents in early life. A truss generally brings about a cure. The subject of a hernia in infancy is not often in the present day allowed to go for three years without treatment, and strangulation seldom needs an operation in children; so that it will be seen that the cases where a radical operation is needed are not by any means common.

ENCYSTED VESICAL CALCULI.

W. Bruce Clarke (*British Medical Journal*, May 13, 1899) in 1891 published an account of six cases of encysted vesical calculi. Since that date he has had thirteen other cases under his care, and by the kindness of his colleagues at St. Bartholomew's, has been able to describe eight other cases, most of which he has had the good fortune to see during their stay in the hospital, making a total of twenty-seven cases in all to form the materials for his paper.

Of the six cases that were recorded in his first paper, no fewer than three were due to pieces of bone that had found their way into the interior of the bladder from the surrounding structures. The other cases were instances of true encysted calculi, which had been formed presumably in the kidney, and then, finding their way into the bladder, had either dropped into a sacculus which was ready for their reception, or had become fixed in some depression of the bladder wall, and

had by their gradual growth formed a sacculus for themselves. It is probable that in at least one of the cases referred to in this paper, this was the way in which the calculus was formed; for when this bladder was inspected with a cystoscope two years after the removal of the stone, no trace of a sacculus was to be seen. In another case the sacculus was most likely quite independent of the stone, for stones were found on a second occasion in another part of the bladder, and the sacculus originally occupied was empty.

It has often been assumed that these sacculi are all due to what are called tunicary herniæ, and depend on the pouching of the mucous and submucous coats between the bands of muscular fibers. The author, however, is convinced after an examination of numerous specimens both before and after death, that the muscular walls very often form a constituent part of these sacculi. It is, moreover, often very difficult to determine with accuracy in all cases the nature of the sac walls, owing to the inflammation which has been set up by the stone which has long lain there.

When operating on these cases there is one point which must always be considered, namely, what is to be done with the empty sac from which a stone has been removed. There is no doubt that many of these sacs, especially when prolonged attacks of inflammation have destroyed their epithelial lining, tend to contract and cicatrize of their own accord if their orifice is of sufficient size to preclude the possibility of pus stagnating in their interior. If, on the other hand, the orifice of the sac is small and contracted and the sac itself is of large size, some means must be adopted for its independent drainage, and the route which is selected must depend on the condition of the patient and the position of the sacculi. As most of these saccules are situated near the base of the bladder, it will probably be advisable, if they demand drainage, to drain them through the perineum, and to make a temporary channel between the bladder and rectum, if this is possible.

On looking over the symptoms which these cases presented, it is difficult to single out any one sign which might be held to be of considerable diagnostic value. Cystitis of longer or shorter duration appears to have been present in every one of the cases, but as the great majority of them—namely, sixteen out of twenty-one—were above sixty years of age, and had in addition some evidence of enlargement of the prostate gland, the cystitis was naturally in the first instance ascribed to that condition, and not to the presence of a calculus. In several undue tenderness of the prostate gland when examined per rectum, and rectal tenesmus, were marked symptoms. Only three of the cases were under forty years of age, one of them being but fourteen. The only two cases in the list between the ages of fifty and sixty had suffered from stricture; and it is noteworthy that two of the first six cases also had suffered from stricture, and were likewise between fifty and sixty years of age.

The difficulties of diagnosis were also enhanced by the fact that in several instances washing out the bladder was quite sufficient temporarily to restore the urine to a healthy condition. It is, perhaps, also worthy of note that in several instances the stones when extracted proved to be so thickly coated with mucus that even when they lay upon the table no audible note could be obtained when they were struck with the beak of the sound. This affords a ready explanation of the difficulty which may be experienced in detecting a stone in the bladder under certain conditions.

In six of the twenty-one cases no operation was performed; in most instances, because the patient's condition was too bad to admit of any chance of alleviating his symptoms. Of the remaining fifteen that were submitted to operation, four died and eleven recovered.

The fact that in less than half the cases was the existence of the stone known before the operation was undertaken certainly affords an additional argument for exploration of the bladder in those cases of cystitis which do not yield to ordinary treatment.

In one instance the patient had been castrated to relieve his prostatic symptoms, and the stone was only detected after death. It is quite possible that if his bladder had been explored at an earlier period he might have retained his testes and had his life prolonged after removal of the stone.

The author has since that time made it a rule to explore the bladder in obscure cases of enlarged prostate which remain irritable after repeated washing, and has never had occasion to regret this plan of treatment, which no doubt largely accounts for this series of encysted calculi. Even if no stone is detected, the patient usually derives great benefit from the operation, owing to the rest which is afforded to the urethra.

THE SURGICAL TREATMENT OF PELVIC INFLAMMATORY LESIONS BY ABDOMINAL SECTION.

BALDY (*American Journal of Obstetrics and Diseases of Women and Children*, May, 1899) states that the following is the status of the abdominal section for pelvic inflammatory lesions, as is demonstrated by his own quoted work and by that of many other surgeons:

1. The operation is the safest in this particular class of cases or almost any other to which abdominal section is applied.

2. Shock rarely enters into the case as a serious sequel; never more so than in the vaginal operation.

3. Drainage is the exception; it is the rule in vaginal work.

4. Hernia occurs in not more than one per cent of cases operated upon.

5. Women are not prone to complain of the abdominal scar.

6. The patient could arise from her bed and return to her home at as early a date as after the vaginal operation, were it considered advisable for her to do so.

7. A completed operation is always possible by the abdominal route; in a large percentage of the bad cases it is impossible by the vaginal route.

8. The technique of the abdominal operation is much more easy than that by the vagina.

9. There is less danger of damage to the hollow viscera by the abdominal route; if such injury does occur there is less danger of infection from such injury, and the damage is more readily repaired. As a matter of fact such injuries are impossible of repair by the vaginal route.

10. The mortality of the abdominal operation is all that could be desired, and no other major operation shows a better record.

TREATMENT OF EXSTROPHY OF THE BLADDER BY URETERAL RECTAL ANASTOMOSIS.

JOSSERAND (*Revue Mensuelle des Maladies de L'Enfance*, June, 1899) cites statistics of this operation to the effect that of a total of eighteen cases there were but two operative deaths—one from shock, and one from infection. There were a number of cases of urinary fistula lasting but a short time, and complicated by localized peritonitis. Pyelonephritis has been observed in but a single case, namely, that of Mikulicz, death occurring in this instance four months after operation. Several cases have been followed for a period of from six to fifteen months without showing signs of kidney infection. Function was perfect in all but two cases; the urine could be retained for three to four hours, sometimes six to seven hours, and the patients could sleep all night without being incommoded. Tolerance of the rectal mucous membrane has always remained perfect.

The author reports the case of a child, five years old, on whom he operated. A bougie was passed into each ureter; the mucous membrane of the bladder was then circumscribed by an incision carried down to the parietal peritoneum, and was dissected up. The ureters were isolated and mobilized for a distance of about one and a half inches; then the bladder was resected, with the exception of a small area placed about the ureteral orifices.

The operative region was then thoroughly sterilized anew, and a celiotomy was made an inch above the wound left by the dissection of the bladder. The sigmoid flexure of the colon was drawn out, walled off by sterile compresses, and held in place by the fingers of the assistant. A longitudinal incision was then made along the convex border of the sigmoid; into this incision the trigonum was slipped. The anastomosis was completed by two layers of continuous sutures, one muco-mucous, the other sero-muscular, for the intestine, and muscular for the bladder. When these sutures were completed the bridge of tissue which separated the two parietal wounds was divided, and the viscera were replaced in the abdomen. The parietal wound was then closed except at the lower part, where the separation of the pubic bones made this impossible. This space was tamponed with gauze. The wound ran a fairly satisfactory course. For the first few days there was some incontinence; afterward the child could retain the bowel contents during the entire night.

SINUS THROMBOSIS SECONDARY TO SUPPURATIVE OTITIS MEDIA.

In a review of otology by MILLIGAN (*Practitioner*, May, 1899) the subject of sinus thrombosis secondary to suppurative otitis media is considered, and Whiting's summarization is quoted as follows:

1. The indications which justify an operator in ligating the jugular before exposing the sinus should be very decided and as follows: (*a*) The existence of chronic otorrhea;

(*b*) pronounced manifestations of pyoseptic-cemia, high fever, sudden remissions, and repeated rigors; (*c*) metastases; (*d*) Griesinger's symptom—occipital edema; (*e*) edema of the eyelids of corresponding side; (*f*) tenderness along the course of the jugular in the neck, and perhaps the cord-like feeling of the infected vein; (*g*) beginning neuroretinitis—a majority of these symptoms should be present.

2. The indications for ligation after exposing the sinus and recognizing it, but before opening it: (*a*) The presence of a clot extending well down into the bulb, and disintegrated in its lower portion (as indicated by aspirator), associated with distinct pyemic symptoms, although metastases are absent; (*b*) the display by the sinus of respiratory movements would render probable the admission of aerial embolism to the heart unless the vein were first tied.

3. Indications for ligation after exposing and opening the sinus: (*a*) The presence of a large thrombus, extending down into the bulb, and having undergone purulent liquefaction in the deep bulbous portion, which may not have been diagnosed until the sinus was extensively opened; curetting deeply in the neck under such conditions is fraught with imminent risk to the patient unless the vein is tied. (*b*) Inability to reestablish the circulation from below, whether the clot has or has not disintegrated, and whether or not there has been tenderness in the neck. (*c*) Inability to reestablish the circulation from either direction has aroused some discussion as to the advisability of ligating both jugulars.

In cases of ear disease of doubtful origin, and where the symptoms complained of are mainly of a subjective character, it is a good and wise rule to carefully analyze the urine.

Dowling has found that certain cases, accompanied by such symptoms as tinnitus, dull aching pain about the mastoid process, deafness, slight irregularity of gait, etc., are associated with renal changes. He believes that the retention of certain products in the blood produces a toxic irritation of the auditory filaments, and possibly causes an albuminous degeneration similar to that occurring in retinitis albuminurica.

From a summary of fifty-six cases (fifty-three from literature and three cases of his own), Morf has come to the conclusion that the aural changes due to nephritis may be divided into two main groups. The first group includes those cases where definite pathological processes in the ear—macroscopic, microscopic, or those revealed by functional examination—are found; the second group, those cases where no tissue changes can be made out to account for the functional disturbance. Middle-ear affections are present in three forms—inflammatory, inflammatory-hemorrhagic, and hemorrhagic.

Rosenstein was the first to suggest the possibility of an edema of the auditory tracts causing disturbances of hearing in nephritic patients. The author is inclined to regard the anesthesia of the auditory nerve and the tinnitus as symptoms of chronic uremia confirmed by the slight diminution of vision without ocular changes, which could be regarded as a uremic amblyopia. The usual auditory symptoms are subjective noises and a loss of hearing. Deafness may vary in degree and duration. The diagnosis of a nephritic affection of the ear is confirmed when, in addition to the nephritis, a direct connection of the latter with the aural disturbance is ascertained. Hemorrhages are always ominous, as they are usually soon followed by death. In purulent middle-ear disease a nephritic basis is a bad prognostic omen.

CAUSES AND TREATMENT OF BALDNESS.

A monograph upon this important subject by GESSNER has been extracted by Vogt (*La France Médicale et Paris Médical*, No. 22, 1899). Chronic seborrhea, he states, is not of such serious prognostic importance as is generally supposed, providing that timely treatment is employed. This prophylactic treatment consists mainly in the thorough application of soap; tincture of soap, with the addition of a little lavender, is especially recommended. This is rubbed in, after which the hair is washed with very hot water, which in turn is followed by cold water.

In case the skin is irritable or inflamed, or if there is eczema, the following ointment is used:

Ichthyol, 0.5;
Oxide of zinc,
Starch powder, of each 2.5;
Vaselin, 20.0.

On first beginning this treatment after baldness has commenced, many hairs will come out, but these are all irremediably lost and simply hang in their follicles. They should be removed to make room for others. This treatment is employed once or twice a

week, and to avoid the removal of too much fat, it is followed by an application of oil. After thoroughly cleansing the scalp, as a means of treating seborrhea, the following ointment should be used:

Precipitated sulphur, 1 to 2;
Pure resorcin, .5 to 1;
Salicylic acid, .25 to 1;
Tincture of benzoin, .5;
Vaselin, 20.

This ointment is applied directly to the scalp while the hair is being separated by a comb and is rubbed in. This treatment is usually applied in the evening, after which the head is covered by a nightcap. As a substitute for the ointment the following may be employed:

Pure resorcin, 3 to 6;
Hydrate of chloral,
Tannic acid, of each 0 to 10;
Tincture of benzoin, 2 to 4;
Castor oil, 6 to 10;
Alcohol, 200.

When baldness already exists the scalp must be vigorously stimulated; for instance, by applying every evening with a stiff brush an ointment containing five to ten per cent of chrysarobin; the scalp is then covered with a cap. At the same time faradization with a brush is practiced daily from five to ten minutes.

A CONTRIBUTION TO THE CRÉDÉ SILVER METHOD OF WOUND TREATMENT.

MEYER (*Southern Practitioner*, June, 1899; abstracted from the *Deutsche Militairärztliche Zeitschrift*, xxviii, No. 1, Berlin, January, 1899) states that the conclusions to be drawn from a series of reported cases may be stated as follows:

The course of a wound under the silver treatment is in general similar to that under the usual aseptic and antiseptic procedures. But silver possesses two important advantages. Rapid and reliable healing can be obtained without asepticism and with less rigorous antiseptic measures, and thus with simpler means and less trouble. Hence it is especially suitable for the sick-bays of ships, for use in the field, and for hospitals where the facilities for aseptic wound treatment are deficient, and suppurative affections and fresh wounds have to be handled in the same rooms or very hurriedly, or with inexperienced assistants. The author states that as far as his material permits him to judge, he has found Crédé's statements to be correct, and considers his method an efficacious and handy one.

The second advantage is the marked tendency of the method to effect the localization of inflammatory processes, as Crédé claims. In most cases the inflammation of the tissues surrounding the lesions subsided in the shortest time; and even when it progressed along the lymphatics a general infection was prevented.

Poisoning by the metal, or any special pain from its use, was not noticed; eczemas did not occur. The course of healing was noticeably shortened, and primary union took about the same time as with aseptic treatment. Necrotic tissue, when present, was cast off with a non-irritating suppuration before actual union began. The cases of general infections and of burns were too few to permit of a definite judgment; but a favorable reaction of the system to the inunctions was readily recognizable. Granulations under the citrate were almost always remarkable for their vivid color and vigorous growth.

The abundant serous secretion from the tissues was apparently a disadvantage in the cases where a primary union was desired; but whether this was dependent upon the citrate itself or upon other circumstances the author cannot decide.

The cost of the silver treatment Meyer did not find to exceed that of other methods. The citrate of silver is dearer than iodoform, but it is used in very much smaller quantity, as a very thinly dusted-on covering. The silver gauze is too expensive for universal use, but the author believes that common gauze with the citrate will do just as well. The price of the ointment is of no importance, on account of the small quantities that are employed.

The following is the method which Meyer now employs for ambulant patients, in view of the very reliable anti-inflammatory and localizing properties of the Crédé silver preparations: Injuries and inflammatory processes are treated with silver until all traces of inflammation have disappeared, and until healing by adhesion and granulation formation has begun in the depths of the wound. Cicatrization may be promoted by cauterizations and salves. Operative wounds in which primary union is not absolutely necessary are treated with silver if it does not appear that the abundant serous secretion interferes with the healing. For febrile symptoms he employs the salve by inunction; more rarely, he administers the silver internally.

In conclusion the author states that the silver treatment, while not equal to the asep-

tic treatment of wounds, is reliable where the latter cannot be carried out, as in non-aseptic hospital operating-rooms, dressing-rooms, in sick-bays, in private practice, and especially in the field. In the latter case the removal of the first dressing need not be a matter of such anxiety as it now is, even if it is soaked with secretion from the wound; for it is proven that the bacteria cannot develop in secretion impregnated with silver.

The author's experience leads him to place the fullest reliance upon the silver treatment of wounds, and he can recommend it in every respect in the most emphatic manner.

COMPLETE REMOVAL OF BLADDER, PROSTATE, SEMINAL VESICLES, ENTIRE URETHRA AND PENIS, SCROTUM AND ITS CONTENTS, FOR TUMOR OF THE BLADDER.

Dr. Hogge (*Annales d. Mal. d. Órg. Génito-Urin*, p. 838, 1898) presented the specimen and history of the patient before the Soc. Méd., Chir. de Liège, December 2, 1897. The specimen consisted of all the organs enumerated in the title, and was an enormous epitheliomatous papilloma of two years' growth. Age of patient and time of operation not given.

The operation was performed January 3, by Professor Winiwarter, assisted by the author, and was done by several stages.

First Stage.—Lithotomy position; the bulb, membranous urethra, and prostate exposed and separated from rectum and the wound tamponed.

Second Stage.—Symphysis exposed; detachment of the suspensory ligament of the penis; insertions of the corpora cavernosa; symphyseotomy. Hemorrhage from the plexus of Santorini stopped by tamponade. Pubes separated by abduction of flexed thighs, which at this point caused rupture of bladder and hernia.

Third Stage.—Separation of peritoneum from bladder and of the prostate from rectum, with the fingers, the patient being placed in the Trendelenburg posture.

Fourth Stage.—Section of lateral attachments of bladder and urethra, ligature of ureters, patient being placed again in lithotomy position.

Fifth Stage.—Implantation of ureters into the anterolateral wall of the rectum, two catheters cut square being introduced into rectum into the ureters, and ureters sutured into rectum.

Sixth and Seventh Stages.—Closure of symphysis with silver wire, the abdominal and perineal wounds with silk sutures, and a Mikulicz tampon placed behind the pubes. Recovery of patient.

The catheters were removed from the rectum in forty-eight hours, and urine passed by rectum. By February 10 pains had disappeared; condition of patient excellent; gain in weight. There was left one fistula, from anterior wall of rectum, from which there was some escape of feces and urine. Patient went to stool only once a day; most of the urine passed by the fistula, and caused itching and discomfort in the anal region; otherwise good recovery.

ANESTHETIZATION OF THE SPINAL CORD BY COCAINE INJECTIONS.

Bier (quoted in *Münchener Medicinische Wochenschrift*, No. 21, 1899) has conducted a remarkable research, having for its object the production of anesthesia in large sections of the body by means of cocainizing sections of the spinal cord. After having employed Quincke lumbar puncture, a very small quantity of cocaine was injected into the subdural space—from one-twelfth to one-sixth of a grain. Following this injection operations such as resection of the ankle and knee-joints, sequestrotomy of the tibia, resection of the tuber ischii, and resection in complicated fractures of the femur could be employed without the patient feeling the faintest sensation of pain. For one or two days after these injections patients complain of cephalalgia, vomiting, and general misery.

With a scientific ardor truly Teutonic, Bier practiced these injections upon himself and upon one of his colleagues, Hildebrand by name. In five to eight minutes after the injection the legs were entirely anesthetic; under one-twelfth of a grain of cocaine this anesthesia lasted forty-five minutes; it then gradually passed away. The after-effects were extremely severe in both cases, Bier being kept to his bed for several days.

SURGERY OF THE HEART.

Podrez (*Revue de Chirurgie*, No. 5, 1899) quotes Jamain statistics to the effect that of 121 cases of wound of the heart and of the large blood-vessels, but a small number resulted in immediate death. Fischer finds, in a study of 452 cases, that the right ventricle is most frequently wounded; he gives the

mortality of non-penetrating wounds of the heart at ninety per cent. Ollier and Sanson have reported twenty-nine cases of penetrating wounds of the heart in which the patients survived more than two days.

Wounds of the auricles and the coronary arteries are more rapidly fatal than wounds of the ventricles; the disposition of the muscular fibers contributes toward the arrest of hemorrhage, so that the wound possibly can close itself completely, and thus entirely stop the loss of blood.

Jamain found in thirty-five wounds of the right ventricle that the patients lived from four hours to twenty-five days; that of a number of lesions of the left ventricle, two patients lived a half-hour, one six months; that in five cases in which both ventricles were wounded the period of life varied from an hour to nine months; that in seven cases in which the right auricle was wounded the patients lived from seven hours to twenty days; of two patients wounded in the left auricle the period of life was one and two days respectively.

Syncope often plays an important part in arresting hemorrhage, but it may itself be fatal, and on reaction the hemorrhage is likely to recur.

The situation of the external opening is of great importance in making a diagnosis of wound of the heart. Fainting is a very common symptom, together with shock, free bleeding, embarrassed respiration, marked irregularity in the pulse, and augmentation of cardiac dulness. To these symptoms are often added trembling, convulsions, vomiting, and even temporary hemiplegia. Shock is a secondary effect of heart wound, and should not be treated until the opening in the heart itself is closed. Hemorrhage is much more likely to be free from wound of the large vessels and of the auricles and of wounds of the ventricles. This bleeding is not the principal cause of death.

Wounds of the coronary arteries are always fatal, and usually immediately so after traumatism; the cause of death is not bleeding, but cardiac arrest because of insufficient supply of blood to the heart muscle.

Respiratory disturbances are usually early symptoms of heart wound, and there is a feeling of suffocation which may go on to apnea. The heart itself becomes rapid, feeble, and irregular, and often there is heard on auscultation a blowing sound, not unlike that of aneurism. This cardiac irregularity may persist for a long time; indeed, there is reason to believe that complete recovery from it is never accomplished.

The condition of the pericardium, especially the amount of distention in it, is extremely important in its influence upon the activity of the heart. When this serous pouch is distended the heart acts very badly, especially if the distention is rapid in development. The prognosis of wounds of the pericardium is extremely grave, according to Erichsen, because of the disturbance in the heart's action, which may result in death a long time after the wound.

When there has been inflicted a penetrating wound of the heart a spontaneous arrest of hemorrhage cannot take place, unless the opening is a very small one of the left ventricle. Such wounds have at times closed spontaneously, and apparently permanently, by a dense cicatricial tissue. Hence it follows that whenever a penetrating wound of the pericardium is followed by the symptoms of bleeding or compression of the heart, a large incision should be made in the cardiac region. After having made a provisional resection of the upper part of the thorax and explored the heart and the cavity of the pericardium, the wound is either sutured or tamponed, according to its nature.

It often happens that death follows so quickly that intervention is impossible. Even when this is not the case, the technical difficulties of the operation are considerable. It has been abundantly demonstrated that there is an extreme inconstancy in the limits of the region within which the surgeon is enabled to incise the thorax and the pericardium without wounding the pleura. A direct penetration of the pericardium is only possible to the left of the lower extremity of the sternum, and about the position of the articulations of the sternum with the fifth, sixth, and seventh costal cartilages, not far from the point where the cartilages become continuous with the bony ribs. The opening confined to this region does not give sufficient room for intrapericardial manipulations. The only satisfactory method consists in a large opening of the region by a flap incision; the best flap is that which includes nearly all the left half of the lower extremity of the sternum, and the third, fourth, fifth, and sixth costal cartilages; the latter may be sectioned at the position of the costocartilaginous articulation.

The incision begins an inch and a half from the left border of the sternum and the second intercostal space, is carried to the

midsternal line, then almost vertically downward, following the middle line of this bone as far as the seventh sternocostal articulation. At this point it curves outward, following obliquely the seventh cartilage. After having penetrated into the mediastinal cavity at the level of the seventh costosternal articulation, Volkmann's resection scissors or other convenient cutting instrument is employed, cutting directly upward through the sternum in the line of the skin incision to the second intercostal space; here the bone is cut transversely to the left. By care the periosteum of the lower surface of the sternum may be separated before the bone is divided, thus avoiding wounding the pleura, especially when before lifting up the flap the pleural cul-de-sac is stripped outward. Even though the pleura is opened this does not constitute a serious complication.

The author cites a case of cardiac surgery. A girl, sixteen years old, was shot in the stomach and chest with a revolver; this was followed by deep syncope, from which recovery was very gradual. Two hours later she was brought to the hospital exhibiting profound shock; the pulse was scarcely perceptible, respiration was irregular and superficial, the heart-beat could not be heard. Percussion showed increased dulness to the right. The patient complained principally of thoracic pain and dyspnea. The wound was placed in the region of the fifth costosternal articulation; it passed obliquely upward to the left, and was penetrating. The patient showed some reaction after exploration of the wound, but two days later the heart dulness increased, and the other symptoms of hemorrhage into the pericardium appeared. The pulse diminished in intensity, and a sense of suffocation and nervous depression developed.

The patient was etherized and a grooved director was introduced to a depth of two inches, evacuating a turbid and yellowish fluid; the end of the sound was in direct contact with the heart. The wound track was enlarged and drained. About half a glassful of liquid was evacuated. As the pericardium was relieved of pressure the general condition improved.

The next day the symptoms recurred with increasing violence. A flap was raised, and the entire heart was exposed, together with the large vessels. The pericardium was irrigated with boric acid solution and the wound was looked for. After having stripped off some false membrane a longitudinal whitish opening was found in the surface of the right ventricle, about an inch from the apex of the heart. The introduction of a grooved director showed that this opening was closed rather by muscular fibers than by cicatricial tissue. By means of a needle the ventricle was explored, in the effort to find the foreign body. More than ten punctures were made, but the bullet could not be found. A manual examination of the pericardium was then made, and finally the heart was seized between the two hands, an effort being made to detect the foreign body by manual palpation. Neither the punctures of the needle nor the lifting of the heart from the pericardial cavity and its firm compression between the two hands arrested its movement. This organ continued to contract irregularly but sufficiently. For a week the pericardial cavity secreted an abundant purulent liquid. About the end of the third week the secretion had almost entirely disappeared. The packing was then replaced by a drain.

Later, by means of the fluoroscope, the foreign body was seen above the upper border of the fifth rib, an inch from the left border of the sternum, and about the same distance from the left nipple. This foreign body moved in correspondence with the rhythmic contractions of the heart, showing that it was placed within this organ. The patient five months after operation was well, and was still carrying the foreign body in the heart substance.

FOREIGN BODIES IN THE PHARYNX AND ESOPHAGUS.

JONES (*The Lancet*, May 6, 1899) states that from a study of his own cases of esophagotomy and a perusal of general results, he would submit: (1) That bodies which have lain for some time and given rise to symptoms of obstruction, irritation, or dyspnea should be operated upon without delay; (2) that forcible attempts at extraction by the mouth are to be condemned; (3) that sharp or irregular impacted bodies specially demand esophagotomy; (4) that in certain cases gastrotomy is indicated, and in some a combination of gastrotomy and esophagotomy; (5) that where the wound in the esophagus is jagged or its walls inflamed no stitches should be used; (6) that the routine practice where the esophageal wound is clean cut is to stitch it up with a continuous suture, care being taken as in the case of the intestine not to pierce the mucous coat; (7) that

only in very exceptional cases where no danger of suppuration and infection exists should the external wound be closed; and (8) that liquid food may be given by the mouth in about twenty-four hours after operation.

THE USE OF HOT STEAM IN DERMATOLOGY.

LIEBERSOHN (quoted in *Münchener Medicinische Wochenschrift*, No. 21, 1899) has obtained excellent results by the use of hot steam long continued in a number of chronic skin diseases. He states this measure is specially indicated in circumscribed cases of chronic eczema, particularly of the face, and in suppurative forms; in acne, in non-parasitic sycosis, in leg ulcer, rosacea, lupus vulgaris, venereal ulcers, and erythematous lupus. It is contraindicated in acute forms of eczema, in the diffused and varicose manifestations of this disease, in psoriasis, favus, and herpes tonsurans.

Of twenty-two cases of chronic eczema thus treated only one was uncured. The results were especially brilliant in sycosis, leg ulcer, and acne. All such cases thus treated were cured.

A CASE OF ACUTE CARCINOMA OF THE BREAST.

J. B. DAVEY (*Treatment*, May 25, 1899; quoted from *Middlesex Hospital Journal*, February, 1899) reports the following unusual case: The patient, a married woman aged twenty-nine, was admitted, under Mr. Pearce Gould, on October 8, 1898, with the following history: Ten months ago she gave birth to her fourth child, which she continued to suckle until a week ago. Seven weeks ago the baby refused to take the left breast, although at that time the patient did not notice anything the matter with it. Shortly after that, however, the patient found that her left breast was "hard and lumpy." She continued to suckle the baby at the right breast until a week ago, when it was weaned. The left breast got much larger after the baby refused it, but recently it had not increased. For three weeks the skin over the left breast had been reddened, and during this time she had suffered much pain in the lower part of her spine. The patient stated that during the last eight weeks she had lost much flesh. There had been no discharge from the nipple. Since her confinement the patient had not menstruated.

On examination the left breast was seen to be prominent, especially internal to and slightly above the nipple; the skin covering it was discolored and blotchy, varying in color from red to brown, and indented by numerous small dimples. The nipple was retracted; there was no discharge from it. The whole breast was felt to be converted into a firm mass, and around it there were numerous small, hard, bright crimson nodules in the skin, and some also in the subcutaneous tissue. A group of these passed backwards almost to the posterior fold of the axilla; there were several on the upper and inner aspect of the breast. The skin was firmly bound down to the swelling, which was partly fixed to the pectoral muscle. The swelling was fairly well defined and not tender, except on very firm pressure. A chain of enlarged hard glands was traceable from the breast to the apex of the axilla. No glands were felt above the clavicle.

The right breast was large and its nipple well formed. In its upper part several very hard, small, rounded nodules were felt; these were not adherent to the skin, and no enlarged glands could be felt in the right axilla.

From the date of admission to the hospital to the date of her death, which took place on November 4, barely four weeks later, the condition of the patient became rapidly worse.

The condition revealed by the post-mortem examination was a remarkable one. Although the disease was of only eleven weeks' known duration, the secondary growths were exceedingly numerous and somewhat unusual in their distribution. They clearly explained the symptoms exhibited during life. The lungs and pleura have been found to be most frequently affected; but in the case under consideration, although both pleuræ were extensively affected, no growth was found in the substance of the lung itself. The liver is most frequently affected after the lungs and pleura, and in this case was thickly studded with cancerous nodules. Next to the liver, the kidneys, bronchial glands, opposite breast, peritoneum and mesenteric glands, heart, and pericardium are most often affected; but in this case all these organs, excepting the opposite breast, were found to be free from cancerous growth.

Mr. Gould recently removed both breasts simultaneously from a patient aged forty-eight, and both breasts were the seat of cancerous growth. A tumor had first been noticed in the left breast four and a half

years previous to operation. The patient made a good recovery. In the case under consideration the second breast was evidently early affected, and it is interesting to note that although on admission to the hospital the second breast was evidently affected, the child had taken that breast until a week before, when it was weaned, so that the disease had probably reached considerable development in the left breast before the child refused to take it.

ABLATION OF THE GASSERIAN GANGLION.

COELHE (*Revue de Chirurgie*, No. 5, 1899) operated upon a man who, for the relief of neuralgia affecting all three branches of the trigeminal nerve, had been subjected to tooth extraction, sea baths, electricity, cauterization, and all the known methods of conservative treatment. In 1894 a surgeon divided the infra-orbital nerve; the next year another surgeon divided the superior maxillary. These operations were futile.

In 1898 Coelhe resected the Gasserian ganglion, together with the protuberance. The eye was first occluded by sutures, after disinfection of the conjunctival cul-de-sac; a curved incision was then made, beginning behind, a little below the external orbital angle, carried upward and backward for two inches, then curved downward to a point just in front of the tragus. This incision was carried down to the bone, the divided blood-vessels being ligated; the zygoma was mobilized by two incisions in the line of the skin cut; this flap was turned downward, together with the periosteum, which was stripped off the skull by means of trephine and forceps. The opening of the skull was made about an inch and a half in its anteroposterior dimension, an inch in vertical measurement. The dura mater was then separated by a strong polished elevator about an inch and a half long and an inch wide, slightly angled at its end. By means of this instrument the middle meningeal artery and the superior and inferior maxillary nerves were exposed. In separating adhesions there was a free hemorrhage, which was only checked by packing. The operation lasted forty-five minutes.

Three days later the packing was removed, and the superior and inferior maxillary nerves were divided by a blunt-ended tenotome quite near the ganglion. For the isolation of the ganglion a spatula was used about three-fifths of an inch long and one-fifth of an inch wide, with a slight anteroposterior curvature; it was carried backward and upward, avoiding the cavernous sinus, and passing above the ganglion; when the latter was freed it was seized with hemostatic forceps and torn away by a movement of traction. The separation of the upper surface of the ganglion has often been considered impracticable; the author found, however, that it was extremely easy. Seizing successively each of the maxillary nerves in the cranial cavity, they were drawn out and cut as short as possible. This second operation occupied twenty minutes.

A microscopic examination of the ganglion showed that it was the seat of marked degeneration. Five days after operation the eye was opened and found to be normal. Next day the cornea was slightly opaque. By lavage a thin superficial layer was detached, leaving an absolutely transparent surface. Continuing with compresses and aseptic treatment, the opacity recurred. At the end of a month it was, however, entirely clear, with the exception of one spot. It was found when the eyelids were kept closed that the cornea remained clear; when the eyelids were allowed to remain open, however, because of the insensibility resulting from operation, the cornea was not protected from mechanical irritation. The neuralgia was entirely cured.

Coelhe states that the ablation of the Gasserian ganglion should be the measure last attempted in the treatment of trigeminal neuralgia, since it is dangerous, principally because of the possibility of wounding the internal carotid artery. Lesions of the cavernous sinus and of the middle meningeal, though not as dangerous, since in general the bleeding can be controlled, weaken the patient and prolong or adjourn the operation.

Cerebral compression, shock, and secondary infection have been causes of death. The operation should consist in tearing away the trigeminal at the protuberance, as a means of avoiding recurrence, since thus it is certain that the entire ganglion is removed, whilst the same certainty does not exist when the isolated extirpation of the ganglion is attempted.

PRACTICAL POINTS IN THE MANAGEMENT OF SKIN DISEASES IN CHILDREN.

BULKLEY (*New England Medical Monthly and the Prescription*, May, 1899) says it is well always to bear in mind the very abundant nerve supply of the skin and the very

tender and delicate character of the skin in early life, as indeed at every age. Zinc ointment has been a boon to eczema, because it affords a simple and non-irritating dressing in most cases, and the profession has done well to employ it so largely. But it is a relatively inert and ineffective remedy when used alone, although with certain additions it often proves of the greatest service. Ichthyol, two to ten per cent, and salicylic acid powdered, two to five per cent, in zinc ointment, are often most valuable in these cases. The old tar and zinc ointment is as follows:

℞ Unguent. picis, ʒ ij;
Zinci oxidi, ʒ j;
Unguent. aquæ rosæ, ʒ vj.

It often affords the very best dressing possible, and, if correctly and faithfully applied, remains still one of the best applications for eczema.

A word in regard to the method of making applications of ointment, especially to children, for we may be sure that they will not be employed exactly in the right manner, unless special directions are given. It is better to expect that patients and attendants know nothing rightly in regard to the details of treatment, and therefore to give very full and explicit directions in regard to methods and mode of treatment.

To be effective an ointment should be kept in very close and constant contact with the part, and the common method of smearing the surface and then placing linen or other covering upon it seldom suffices for the proper treatment of eczematous surfaces, where the disease is at all severe. The author states he has long advised that the ointment be thickly spread upon the woolly side of lint, cut to fit the diseased surface, and that it then be bound firmly on with gauze bandage. It is surprising to see how much better a suitable ointment works when thus correctly applied than when simply rubbed on the surface.

On the face it is not often desirable to thus bind it on, but it should be reapplied as often as it is at all disturbed, even many times daily.

The author mentions a device for restraining an infant from scratching and tearing itself, which he does not think is as widely known and employed as it should be. This consists in the use of a small pillow-case, with an opening at the closed end, sufficient to admit the head being passed through it. This is drawn down upon the baby, and secured from being raised by means of a safety-pin between the legs. A few more safety-pins suffice to secure the arms in place, at the sides, thus making it impossible for the child to reach its face, or even the other hand. It may seem a little barbarous in description, but after employing this method in suitable cases for many years he has found it to be of the greatest service; the little patient becomes accustomed to it very readily, and does not seem to dislike it more than many of the restraints of childhood; many parents who have used it heartily approve of the method.

In regard to the treatment of infantile syphilis little need be said, for the simple means used years ago remains to-day the best method of combating the disease; and that is by means of mercurial ointment, diluted one-half with cold cream, rubbed into the body and kept applied on the flannel band. There is little danger of the child absorbing too much; a half-drachm may be used night and morning. Iron and appropriate tonics are required later in the disease, and in the very late forms the syrup of the iodide of iron, even in heroic doses, proves most serviceable.

The question as to the cure of ringworm of the scalp is always a serious one; that is, just when the patient is perfectly well and not liable to communicate it to other children. This is often a very difficult question to decide, even to one familiar with the disease.

Long after the diseased patch has reproduced good hair of some length there may be small stubs of broken and diseased hairs, or worse still minute black spots, representing the ends of hairs broken off at the mouth of the follicle; these are yet filled with the spores of the vegetable parasite, and are capable not only of autoinoculation and the production of active disease in the patient, but also of inoculating others.

Cases should never, therefore, be pronounced cured and be allowed to mingle freely with other children until the physician is assured from personal observation that such diseased remnants of hairs are not present. Now this is often a very difficult matter to determine, and the proper examination of the scalp may take many minutes, some writers say half an hour. The hair should be carefully turned back with the blade of a forceps, and all the surface searched with the aid of a lens. It is often necessary to leave a child without treatment for a while, in order that this may be properly done; then,

if there are any suspicious hairs or stumps, these should be extracted and examined microscopically. A case should really not be discharged as cured unless a second or even a third such examination has failed to reveal the presence of the parasite.

Acute urticaria, nettle-rash, or hives, when it bursts out, with its characteristic wheals, from some indiscretion in diet, is easily recognized and commonly yields readily to appropriate treatment. But in certain cases there is only the indistinct history of itching, with restlessness at night, and the wheals may be few and far between, and the condition may often be prolonged for a very considerable period and prove very rebellious to treatment. It must never be forgotten that articles of food, such as oatmeal, which are perfectly healthful for many or most persons, will, from an idiosyncrasy, prove very irritating to certain individuals.

The local treatment which is commonly so promptly effective in impetigo contagiosa consists simply in the official white precipitate ointment, diluted with three times the amount of cold cream. It is often surprising how rapidly even quite an extensive eruption of this kind will disappear under the thorough and continuous application of this ointment.

ARTERIOVENOUS ANEURISM OF THE FEMORAL VESSELS SUCCESSFULLY TREATED BY EXTYRPATION OF THE SAC.

MURRAY (*The Lancet*, June 3, 1899) treated by radical operation a case of arteriovenous aneurism of the femoral vessels of eight years' standing. The patient wounded himself with a penknife and bled profusely. Under a compress this wound healed, but distinct pulsation was noted. A tumor formed, which gradually increased in size. Yet, in spite of this, the man was extremely active, running races and riding long distances on his bicycle. Shortly before operation the tumor grew rapidly, and because of increased pulsation and thrill in the limb sleep was interfered with; moreover, there was much aching and numbness in the leg. The tumor was as large as the fist, lying just under the skin, covering the site of Hunter's canal. One tourniquet was placed round the leg, immediately below the knee; the second one round the thigh as high up as possible. An incision eight inches long was then made over the course of the femoral vessels, the sac exposed, dissected free of the muscles to which it was adherent, and the artery and vein, both much dilated but otherwise apparently healthy, were tied three-fourths of an inch above their communication with the sac with catgut ligatures. About one-fourth of an inch below the point of communication the artery was smaller than natural, the vein larger. They were both secured with catgut ligatures. The sac was then dissected out and was, together with the attached portions of the artery and the vein, removed. The recovery was uneventful.

Dr. Curtis has collected details of twenty cases of varicose aneurism treated by extirpation of the sac, with nineteen cures and only one death, the latter due to sepsis. Among these twenty cases there were six femoral, three popliteal, and three axillary varicose aneurisms, all of which were permanently cured.

Keen, because of a very rapid advancing varicose aneurism in the case of a boy, aged fifteen years, tied the common carotid and internal jugular vein above and below, and attempted to extirpate the sac. Though the latter part of this operation was not practicable, the boy was cured. Keen agrees with Curtis that cases of arteriovenous aneurism of the common carotid and internal jugular seldom require surgical treatment.

Page has had under observation for eight years a patient who has an aneurismal varix of the common carotid and internal jugular vein, but no aneurism has developed, though the vein is very much dilated.

ANEURISM OF THE SUBCLAVIAN ARTERY TREATED BY PROXIMAL LIGATION, FOLLOWED AFTER AN INTERVAL BY REMOVAL OF THE SAC.

ALLINGHAM (*The Lancet*, June 3, 1899) had brought to him a sailor, twenty-five years old, who for twelve months had been suffering from a swelling above the right clavicle, which gradually increased in size. This was accompanied by pain, at first intermittent, lately continuous, situated in the right upper extremity. This tumor exhibited all the characteristics of aneurism. A V-shaped incision was made, one arm of which ran down the anterior border of the sternomastoid muscle, the other arm along the clavicle; the sternomastoid muscle was divided; the first part of the subclavian artery was exposed, and a kangaroo tendon passed round the vessel immediately external to the origin of the

vertebral artery and just at the inner border of the scalenus anticus. Pulsation persisted, and the aneurism continued to grow. Thirty-eight days after the first operation the whole length of the clavicle was exposed by a transverse incision; a further vertical incision was made to give added room. The greater part of the clavicle was resected, leaving only the two extremities. Careful dissection revealed the aneurism springing from the upper and anterior aspect of the vessel in its third portion. The tissues surrounding the aneurism were dissected off the sac. The axillary artery was ligatured with silk and divided on the distal side of the tumor. This procedure allowed the aneurism to be freed from the first rib and turned upwards, and so to bring into view the second part of the subclavian artery on the proximal side of the aneurism. This part of the vein was ligatured with silk and the aneurism was cut away. The subclavian vein was torn, but this opening was closed by lateral ligature. The operation occupied two hours. The axillary artery, as far as it was exposed in the wound, was found to be obliterated. A month later pulsation was present in the brachial artery and also in the radial at the wrist.

FIBROUS STRICTURE OF THE RECTUM.

HORROCKS (*British Medical Journal*, June 3, 1899) states that fibrous stricture of the rectum, unaccompanied by ulceration, is not a common affection, and is difficult to treat satisfactorily. It occurs more commonly in women than in men. The situation of the stricture especially considered is from one to two inches from the anal margin, where the levator ani slings the rectum. The stricture is usually a narrow one, but in some cases the strictured part is an inch or more in depth. Such strictures have been attributed to the fibrous thickening in the sheath of the levator ani, caused by long-continued reflex spasm of that muscle. The originating irritation is usually some piles or an ulcer about the anus. Dr. Reider attributes it to syphilitic infection of the pudendum, which sets up endophlebitis and periphlebitis of the rectal veins, which carry away the blood from the pudendum.

The usual treatment by passing bougies is very painful, and affords only temporary relief. Forcible dilatation is a dangerous and unscientific method. It is dangerous because the stricture yields at its weakest part, which may lead to laceration and infection of the peritoneum. It is unscientific, as the tear when healed leaves the patient in much the same condition as before the operation. The method here advocated is so simple, and in two cases was so satisfactory, that there seems no reason why it should not come into general use. It consists of a vertical division at the part most removed from the peritoneum. The vertical is converted into a transverse slit, and the margins stitched together. To do this the stricture must be within reach, and it is an advantage if the mucous membrane above the strictured part is loose and healthy.

NEPHROTOMY IN A CASE OF SURGICAL ANURIA.

NÉLATON (*La France Médicale et Paris Médical*, No. 22, 1899) performed a celiotomy for the relief of what was supposed to be a cyst of the ovary. This cyst was, however, found to be postperitoneal, and was in reality a hydronephrosis. The kidney substance was practically completely atrophied; therefore the tumor was removed and the abdomen closed. On the eighth day the patient suffered with severe pains in the right flank; it was the left kidney which had been taken away. The attack was so like kidney colic that morphine was given. On the evening of that day only a few drops of blood-stained urine was passed. Ureteral catheterization was practiced, but without effect. Therefore, as the patient had suffered from anuria for forty-eight hours, a palliative nephrotomy was practiced. This showed nothing abnormal. A tube was placed in the pelvis of the kidney, and in a few hours the urine began to flow through it. Seven days later some of the urine appeared in the bladder. For several weeks the secretion was extremely irregular, varying from an ounce to four pints a day. After that it became fully re-established.

SUTURE OF THE HEART.

WEBER (*Centralblatt für Chirurgie*, No. 27, 1899), on the basis of an experimental investigation, states that before a heart wound can be quickly and safely closed by suture, the organ must be exposed by the freest possible parietal opening. Compression of the heart, in order to make the operation a bloodless one, is not practicable in dogs because it often causes death. It is worthy of note that of ten dogs the hearts of which had been wounded after the organs were ex-

posed, three lived; of nine dogs operated on for heart wounds inflicted through the pari, etes, two lived.

The incision suggested by Weber, as the one most suited to allow of free access to the heart, is one beginning to the left of the sternum, just above the insertion of the fourth costal cartilage. The cut is carried in the form of an ellipse, through the skin and muscle down to the bone, transversely across the sternum to the upper border of the fourth left costal cartilage, two fingers' breadth beyond the left sternal border, and downward over the fourth, fifth, sixth, and seventh ribs; finally inward to the base of the xiphoid process, terminating at the right sternal border. The sternum is sawn through in the line of this incision; then after cutting the intercostal muscles in the third interspace, taking care to avoid the internal mammary artery, the fourth, fifth, sixth, and seventh costal cartilages are cut through, and the flap thus formed is folded over toward the right side, the base of the xiphoid process being cut through before this is accomplished.

Riedel, commenting upon this communication, reported that a patient operated upon by him for heart wound two years before was still living and well. He stated that in case of pericardial effusion the heart is not forced away from the chest wall, as is commonly taught, but lies close to it.

Eichel contradicts this last assertion on the basis of a case which came under his own care. The patient was shot with a pistol ball and developed a pericarditis, which made operation necessary. The sternum was resected from the fourth, fifth, and sixth ribs, together with portions of the rib cartilages. Over a pint of pus was evacuated from the pericardial sac before the heart could be felt by the finger.

STERILIZATION OF THE SKIN.

SENGER (*Centralblatt für Chirurgie*, No. 27, 1899), investigating the value of alcohol as a disinfectant for the hands, finds that absolute alcohol will not destroy staphylococcus aureus in twenty minutes. The disinfecting power of this agent increases, however, as this drug is diluted down to fifty or forty per cent. After this the germicidal effect of the drug rapidly disappears. As a result of his experience, he states that a fifty- or forty-per-cent solution of alcohol is a sure bactericide for the staphylococcus. If a mixture of alcohol and carbolic acid is employed the result is less satisfactory than when alcohol alone is used, since a chemical combination results, with the formation of a kind of ether. A mixture of five-per-cent carbolic solution with ten-, twenty-, or thirty-per-cent absolutely pure alcohol is entirely inefficacious.

For three years Senger has employed a method of disinfection of the skin based upon his chemical studies. Two agents were employed which had the power of destroying the cocci, and which entered into a chemical combination which in itself is bactericidal. He employs first a two- and five-per-cent warm solution of hydrochloric acid for two minutes, then a half- to two-per-cent warm solution of potassium permanganate for one minute. The resultant brown discoloration of the skin may be removed in a few seconds by sulphurous acid. The action of the hydrochloric acid on the potassium permanganate causes among other things the development of free chlorine. Oxygen and sulphuric acid are also formed.

According to Krönig and Paul, a one-per-cent solution of hydrochloric acid with one-per-cent solution of potassium permanganate acts far more powerfully upon anthrax bacilli than a five-per-cent solution of sublimate. After bacteriological investigation the author has proven that a one-per-cent solution of hydrochloric acid at about the body temperature is an extremely powerful bactericide. Sulphurous acid and potassium permanganate are weaker. By means of this method he has been enabled to procure sterility of the hands in seventy-eight per cent of the cases. He commends this method as the safest and the quickest for thoroughly disinfecting the hands and the skin when infected with decomposed substances.

FRACTURE OF THE PATELLA.

PRICHARD (*Bristol Medico-Chirurgical Journal*, June, 1899) reports two cases of fracture of the patella treated by wiring, and exhibited skiagrams showing the admirable results which can be obtained by this method. He thus summarizes the various methods of treatment for this injury:

First, the plan without operation. This, the old one, consists of rest with the application of splint and bandages. There are various excellent ways of drawing the fragments together, and perhaps in almost the majority of the cases this method is the one to be recommended, and it often gives fair results; but the best result that can be hoped for is a

ligamentous union with more or less impairment of extension, and the probability is that the individual will never be able to run or climb a ladder.

Secondly, subcutaneous silk ligature, by surrounding the kneecap either laterally or vertically by a stout silk cord. In the latter case the ligature is passed by means of a strong needle right into the joint and is left in, resting on the condyles. The author states that he has had no personal experience of this plan, but that he does not imagine it would be successful in many cases when the tilting of the fragments and the in-dipping of the fibrous covering are considered. The tilting is present in most cases and is sometimes remarkable, as in one case which was wired, where the fractured surface of the upper fragment was directly forwards. The dipping in of the fibrous covering has been present and has given some trouble in all cases the author has seen operated on.

Thirdly, the recently recommended method of massage of the thigh muscles and passive movement of the knee from the commencement of the case. This is advocated by those who think that the cause of bad results in cases that have not been operated on is to some extent atrophy of the quadriceps, and contraction of the fasciæ from want of use. Prichard has nothing to say about this treatment from his own experience. He believes that it can never result in bony union if the fragments have been separated, and a ligamentous union can never give the support that a bony one gives.

Fourthly, the method of an open operation and sewing up the fibrous covering and split lateral expansion of the quadriceps by buried sutures. This has, to the author's mind, little to recommend it in comparison with wiring, as the operation would be as severe, and the result not so secure.

Fifthly, wiring. It is usual to make a longitudinal incision and then carefully to scrape away all material between the fragments, to bore and pass the wire, then to irrigate the joint, washing out all clot, then tighten the wire. Prichard always puts a drainage-tube into the joint on the outer side, and removes it in twenty-four hours. One can generally rely upon a single stout silver wire. A good plan, when the lower fragment is small, is to pass two wires through one hole in the lower, and separate them to pass through two holes in the upper.

Wiring the patella should not be done too soon after the accident; the joint should be allowed at least forty-eight hours to begin to recover from the immediate effect of the injury.

The operation should not be undertaken by any one who has not complete confidence in his antiseptics and in his carpentering skill, nor in cases where the general health is not good; but as far as the author's experience and ideas go, it is the right thing to recommend in young adults who have to use their legs in earning their living, or who wish to be able to indulge in a fair amount of active exercise.

HEMORRHAGE FOLLOWING ADENOID OPERATIONS.

MARTIN (*The Laryngoscope*, July, 1899) reports three cases of hemorrhage following adenoid operations. He had been operating on these growths seven years before he came to a complete realization of what unpleasant consequences could ensue.

The first case, sixteen years old, had been subjected to cauterization of the turbinates for several months before he came under Martin's charge. Some pharyngeal adenoids were removed with the Gottstein knife under cocaine anesthesia. There was free bleeding for a few moments, but it speedily ceased. The patient was placed in the reclining position for perhaps an hour and a half without further manifestations of hemorrhage. When he came to rise the blood gushed freely from his nostrils and mouth. The recumbent position was followed by immediate cessation of the bleeding. After fifteen minutes' waiting the patient was allowed to sit up, and an effort was made to examine his throat with a mirror, but the bleeding started afresh and the patient fainted. After some trouble a plug was inserted into the posterior nares. This was left in place for thirty-six hours. On removal there was no recurrence. About one pint of blood was lost.

The second case was seven years old. Pharyngeal adenoids were removed with almost no bleeding. Two days later there was sufficient hemorrhage to alarm the family; but on inspecting the patient it was found not alarming in any way. Two days following this there was another slight hemorrhage. On the following day, on attempting to examine the nose, the bleeding recurred. As it ceased spontaneously, no effort was made to plug. Later in the same day there was profuse bleeding, amounting to about three-quarters of a pint. The nostril was then plugged posteriorly and

anteriorly, and the child recovered without recurrence.

The third case was six years old. She was operated on for recurrent adenoids. Six days later there was slight hemorrhage from the nose. On the ninth day after the operation there was a very profuse bleeding, amounting to more than half a pint. This patient recovered without plugging.

Reviews.

AN INTRODUCTION TO DERMATOLOGY. By Norman Walker, M.D. With Illustrations in Colored Plates and in Black and White.
Bristol: John Wright & Co, 1899.

The appearance of still another book upon diseases of the skin is fair evidence of the fact that authors and publishers believe that the profession are willing to buy additional volumes dealing with this topic, in order if possible to gain more information concerning a class of ailments which comes before many practitioners.

The present volume is practically a reproduction of the lectures which Dr. Walker has given to his students in Edinburgh. There are several points about it which strike us favorably from the standpoint of the general practitioner: First, that the colored plates, while not particularly handsome, show the diseases they represent in a very lifelike way; secondly, that many prescriptions are introduced which have been found useful by the author in his practice; and thirdly, that the many illustrations in black and white are also excellent.

The frontispiece, or colored plate, seems to us an instance of the author putting his worst foot foremost, as it by no means shows the conditions it is designed to illustrate as clearly as some others which are contained in the volume.

As a brief summary of diseases of the skin, this book can be cordially recommended to the profession; indeed, considering its size and the character of the plates, it is probably the most useful book for its cost that can be obtained.

PULMONARY TUBERCULOSIS. Its Modern Prophylaxis and its Treatment in Special Institutions and at Home. The Alvarenga Prize Essay of the College of Physicians of Philadelphia for 1898. Revised and Enlarged. By S. A. Knopf, M.D. Illustrated. Price, $3.00.
Philadelphia: P. Blakiston's Son & Co., 1899.

Four parties may be congratulated upon the publication of this essay, which is a large octavo volume of nearly 350 pages. The first one who deserves congratulation is the author; the second, the committee of the College of Physicians who awarded the prize to so deserving an effort; the third party benefited is the profession in general; and last, but not least, have patients suffering from this disease cause for congratulation in its publication, for intelligent physicians who read it will have a better idea of the condition which tney are called upon to treat by climatic and other measures than they could possess before it had been read, unless they have traveled widely and visited many of the great sanitaria for tuberculosis. The author brings to his work enthusiasm and experience. On this side of the Atlantic he has had opportunities to study disease of the lungs, and at one time he was assistant to Professor Dettweiler, of the Falkenstein Sanitarium, in Germany.

The book opens with a dedication to the hygienists, statesmen, and philanthropists, and the many noble men and women inside and outside of the medical profession, who labor and have labored, on behalf of tuberculous invalids, and who have demonstrated that consumption is a preventable and curable disease. In the latter part of this dedication it seems to us that the author has struck the key-note which it would be well for all physicians to remember. In the chapters which follow he deals with certain interesting data in the history of tuberculosis, then takes up its mortality, and then the particulars of its curability. In the succeeding chapters he deals with its communicability, the various prophylactic rules and laws which should be instituted for its preventive treatment, and then passes on to a consideration of the more important sanitaria of Europe, United States, and Canada for the cure of tubercular patients. After discussing these he considers aerotherapeutics, rest cure, and various remedial measures other than drugs for the treatment of this class of patients, and deals exhaustively with the various complications of tuberculosis.

There are few persons in the profession who will not be interested in the perusal of the pages of this book. It is a most excellent work.

PYORRHŒA ALVEOLARIS, AND ITS RELATIONS TO GENERAL MEDICINE. By John Fitzgerald, L.D.S.
London: The Medical Publishing Company, Limited, 1899.

This is a tiny volume of sixty pages, in which no attempt has been made to write an exhaustive treatise upon this condition, but

simply to point out the bearings of this disease upon medical practice and to indicate how it may be treated. Practically the volume is a reprint of certain articles which have appeared in the *London Clinical Journal*, and the instruments and methods which are advised are of much greater interest to the dentist than to the general practitioner, although the book is designed to enable the general practitioner to treat the condition.

MASSAGE AND THE ORIGINAL SWEDISH MOVEMENTS, AND THEIR APPLICATION TO VARIOUS DISEASES OF THE BODY. By Kurre W. Ostrom. Fourth Edition, Revised and Enlarged. Illustrated.
Philadelphia: P. Blakiston's Son & Co., 1899.

This is a little manual, earlier editions of which we have noticed favorably in the THERAPEUTIC GAZETTE. We do not know of any small work upon massage which will give the physician and nurse so much practical information as this one, as the descriptions of the various movements and the illustrations which accompany these descriptions are adequate, and yet not so exhaustive as to be confusing and impracticable. The book is one which can be cordially recommended, and will do much good, we doubt not, in increasing the use of these valuable measures in the cure of disease.

HAY-FEVER AND ITS SUCCESSFUL TREATMENT. By W. C. Hollopeter, A.M., M.D. Second Edition, Revised and Enlarged.
Philadelphia: P. Blakiston's Son & Co., 1899.

About a year ago we noticed the appearance of the first edition of this little work, which contains at its end a considerable bibliography of the literature of this well known and persistent affection, and which, after discussing the various causes of the disease, embodies the views of the author and then details the treatment which he has found useful both in the way of local applications, general treatment, and dietetics. The fact that a second edition has been called for within a year shows that the author has dealt with the subject in a manner which has attracted attention.

A MANUAL OF DISEASES OF THE NERVOUS SYSTEM. By Sir W. R. Gowers, M.D., F.R.C.P., F.R.S. Third Edition, Revised and Enlarged, by Sir W. R. Gowers and James Taylor, M.A., M.D., F.R.C.P. Volume I: Diseases of the Nerves and Spinal Cord. With One Hundred and Ninety-two Illustrations. Price, net, $4.00.
Philadelphia: P. Blakiston's Son & Co., 1899.

As the title indicates this, the first, volume of the third edition of Sir William Gowers' classic manual upon diseases of the nervous system deals with diseases of the nerves and spinal cord. The privilege is not given to many physicians of presenting the profession with a work which at once gives evidence of great literary research and ample clinical facilities. Those who are familiar with Dr. Gowers' work note that in some places he deals with certain matters in a somewhat dictatorial and dogmatic manner, controverting views held by other eminent neurologists, but it must be admitted by all persons that the volume is a landmark in the progress of modern neurology. It is needless in this instance to deal with the qualifications which have made the book famous and popular. We are told in the preface of the third edition that every chapter has been subjected to careful revision, and that numerous additions have been made to the text as the result of advances in neurological science and experience. The very great advances which have been made in our methods of studying diseases of the nerves and spinal cord have, of course, necessitated a very great revision of certain portions of the earlier editions, and we find that in the description of the disease known as locomotor ataxia, the newer views concerning this malady are recognized and the important point is emphasized that it consists of the degeneration of the posterior columns of the cord or the peripheral sensory nerves, or both. Too often physicians regard the condition as purely a spinal one, when in reality the peripheral nervous manifestations are the more noteworthy.

It is a pity that in such an excellent book so little attention has been paid to the character of the illustrations. A number of the new ones are much better executed than the old ones, but all of them fail to approach the text in quality. Many of the pictures of patients, as for example those on pages 34 and 35, are little more than rude outline drawings.

THE SERUM DIAGNOSIS OF DISEASE. By Richard C. Cabot, M.D.
New York: William Wood & Company, 1899.

Dr. Cabot in his short prefatory note informs us that this book is nothing but a compilation, its aim being to bring together in convenient form the results of the immense amount of work which has been done upon serum diagnosis since 1896.

While it is true that it is to a large extent a compilation, the pages of the work show very clearly that Dr. Cabot has had a large amount of personal practical experience in serum diagnosis, and therefore the compila-

tion possesses all the greater value because his personal experience has enabled him to separate the tares from the wheat.

Dr. Cabot is a thorough believer in the value of serum diagnosis. We are informed as an instance of how useful it may be that when he arrived at Ponce he found at the United States General Hospital several hundred fever cases, all of whom were receiving large doses of quinine, because the diagnosis between typhoid and malaria had never been clearly established, owing to the lack of materials for producing the serum reaction. He examined 177 cases at this hospital, and found not a single instance of malaria among them, while ninety per cent of those examined showed prompt and intense reaction for typhoid fever. As a result of this a clear diagnosis was at once obtained, and the wholesale administration of quinine was checked and clear ideas as to the proper method of treatment were reached. So, too, it was possible on several occasions to make a differential diagnosis between typhoid fever with jaundice and yellow fever. As he also well points out, had the typhoid reaction been employed, it would not have been necessary to keep the Spanish prisoners nearly a week in Portsmouth, New Hampshire, in order that a diagnosis between typhoid, malaria, and yellow fever could be reached.

Finally, it is worth while to note the assertion with which he closes some introductory remarks, namely, that the cultures used for this test can be kept indefinitely at room temperature, and that the whole process can easily and safely be carried out by the physician in his office without any laboratory facilities, and with half the skill and labor necessary to examine urinary sediment. Dr. Cabot deserves an immense amount of credit for having placed before us this excellent summary of the knowledge of this most important subject.

ESSENTIALS OF MODERN TREATMENT OF DISEASE. By K. M. Nadkarni.
Madras: N. K. Rao & Co., 1899.

This is an extended therapeutic index for the treatment of diseases, arranged alphabetically, and containing many prescriptions for the administration of curative remedies. It seems to be based largely upon the experience of others, and a good deal of information, as is stated in the preface, has been taken from standard works upon practice and therapeucs. In the middle of the volume are several advertising pages of drug firms and publishers. We doubt not that amongst Indian practitioners who wish a book of this character it will prove successful, although we cannot see that it possesses any advantage over somewhat larger and smaller manuals which are at present employed by British and American physicians.

THE HYGIENE OF THE MOUTH. A Guide to the Prevention and Control of Dental Diseases. By R. Denison Pedley, F.R.C.S. Ed., L.D.S. Eng. Illustrated.
London: J. P. Segg & Co., 1899.

The object of this book is quite evident from its title-page. Its contents are, naturally, of much greater interest to dentists than physicians, although it is not to be forgotten that much dental damage can be prevented if physicians in treating their patients pay more attention to the condition of the mouth and teeth. The volume contains copious directions as to the means by which the teeth may be preserved from decay by proper cleanliness and general medical care.

GOLDEN RULES OF SURGICAL PRACTICE. By E. Hurry Fenwick, F.R.C.S. Fifth Edition, Revised and Enlarged.
Bristol, England: John Wright & Company.

This is a tiny little volume of seventy-one pages, about 4 x 3 inches in size, and although it is necessarily closely printed it does not contain very much information in regard to surgery. On the other hand, it may be said that it has been compiled by a well known surgeon who has endeavored in its pages to embody what he thinks are a number of important points. Nearly every sentence begins with "Do not" or "Never forget to" do this or do that. It is a small enough volume to go into the vest pocket, and doubtless will be largely used by students.

We have also received three other little volumes, one entitled Golden Rules of Gynecology, another Golden Rules of Obstetrical Practice, and a third Golden Rules of Medical Practice, which belong to the same series. That upon Surgery, however, seems to us to be by long odds the best of the series.

MINERAL WATERS OF THE UNITED STATES AND THEIR THERAPEUTIC USES. To which is added an Appendix on Potable Waters. By James K. Crook, A.M., M.D.
Philadelphia: Lea Brothers & Company, 1899.

This is a large octavo volume of nearly 600 pages, printed in excellent type and on good paper, and with the object of providing the profession with information concerning mineral waters of the United States. The book opens with a general consideration of

mineral waters, and then deals with the various mineral ingredients which they contain and also with the gases with which they are sometimes charged. After this, chapters are devoted to the therapeutics of the various mineral waters, and then follow others in which the subjects of baths, douches, and other medicinal measures are discussed. In Part Two we find a description of the mineral springs and wells of the United States, with the topographical and climatic features of each in each State and Territory, the various springs being arranged in alphabetical order according to States. It is a matter of interest in looking over this list to find how rich certain States are in valuable mineral springs, and how few springs possessing medicinal properties are to be found in others. The character of the information in this part consists, first, in a description of the railroad facilities for getting to the resort, the distance from near-by prominent points, the post-office address, and then follows an analysis of the water, with a description of the conditions in which it is generally employed.

So far as we know, this is the only complete description of the various remedial waters of this country which is in existence. The work of compiling it must have been very great, and considering the difficulties of writing upon such a subject, the author has certainly completed his task very well indeed. It would be better for their patients if physicians would keep themselves informed as to the various hydrotherapeutic measures which are described, and which do not have to be used in many instances at the springs themselves, but can be employed at home.

THE GROSS AND MINUTE ANATOMY OF THE CENTRAL NERVOUS SYSTEM. By H. C. Gordinier, A.M., M.D. Illustrated with Colored Plates and in Black and White.
Philadelphia: P. Blakiston's Son & Co., 1899.

This is probably the most exhaustive book in the English language dealing with this subject. Although there are a number of translations of foreign works which have been presented to American readers, we believe this is the first one of any size or importance which has been prepared by an American author.

The manner of its publication is almost that of an *edition de luxe*, as the large octavo pages, good-sized type, and heavy paper make it a very handsome illustration of what the medical book-maker's art is to-day. In addition to the colored plates and black and white drawings which illustrate the difficult and somewhat complex subject with which it deals, there are also a number of ordinary colored illustrations which add materially to the value of the book. So far as we have been able to see, every picture shows exactly what it is intended to illustrate, and almost every page indicates the fact that the author is thoroughly in touch with modern neurological views and with the technique of the preparation of neurological specimens Considering the great advances which have been made recently in our knowledge of the minute anatomy of the nervous system, the book appears at a most opportune time. Of course, much of the material which it contains is in the nature of a compilation, but as the compiling has been well done, this is an advantage rather than a disadvantage. Towards the close of the book the various staining methods are given for the preparation and examination of neurological specimens, and a copious index closes its pages.

Much credit is to be given to the author for its preparation, and almost as much to the publishers for their generosity in having provided so handsome a presentation of an important topic.

OUR BABY: FOR MOTHERS AND NURSES. By Mrs. Langton Hewer. Sixth Edition, Revised.
Bristol, England: John Wright & Co.

Six editions of this little handbook designed for mothers and nurses have appeared since January, 1891, and therefore it has evidently proved itself of value to this class of caretakers and readers. An important point evidently recognized by the authoress and insisted upon in her preface, is the well known fact that no two babies are exactly alike, and that every child has its own peculiarities which must be carefully watched and studied; and again, that young mothers are very much influenced by the views of monthly nurses, who if they are well trained can be of distinct educational value to the maternal mind, and if they are poorly trained have an opportunity for perpetuating certain superstitions in regard to childbed and childgrowth which are sometimes unfortunate in their results.

This little book does not profess to be an advanced work upon the care of infancy, nor is it to be employed by physicians, although we are told that in the preparation of the text the authoress has had the advantage of having her pages revised by a competent medical man.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

Another medical year has just drawn to a close, and the benediction has been pronounced over its departure by the recent meeting of the British Medical Association at Portsmouth. The burning question of the year has been the evolution of the new university for London; the Commissioners have at any rate succeeded in finding a local habitation for the university in the desolate buildings of the Imperial Institute. Whether a great teaching center in this site is to supplant or merely supplement the work of already existing centers is a point on which we are still in the dark. There is a pretty widespread feeling that in maintaining so large a number of independent teaching institutions as at present, medicine in the metropolis is laboring under a heavy economical disadvantage. So much of the fees of students is absorbed in the teaching of such costly subjects as physiology, that little is forthcoming for the furtherance of clinical research, and in this field at the present time we are in urgent danger of falling behind other nations. There can be little doubt that some degree of concentration of the early medical subjects is the best and indeed the only way of solving this difficulty, but we do not think that complete concentration into a single center is desirable, as so large a body of students could not be effectively handled by a single set of teachers; and therein is the crux, as the Government clearly cannot be expected to provide several such centers, bearing in mind the price of a single site in the metropolis, and teaching institutions, like individuals, have no liking for the principle of "survival of the fittest" when applied to themselves. There is reason to believe that before the end of the current year we shall be in possession of the Commissioners' complete scheme.

King's College Hospital has just appointed a special physician for diseases of children. To you in America, and to several continental nations, this would hardly seem worthy of comment, but as a fact this is the first appointment of the kind in a general medical school that has been made at any hospital in Great Britain. The natural evolution of the appointment should be towards a professorship in the same subject in association with the hospital clinic.

The lay papers have been in their element recently with startling announcements of the discovery of the causation of cancer, and promises of its disappearance from the catalogue of ills that flesh is heir to. It need hardly be said that the observer to whom these soul-stirring discoveries are attributed is guiltless of inspiring these effusions. The plain fact, as detailed by Dr. Lambert Lack in his disclaimers, is as follows: Having been long impressed by the belief that the epithelial cells of cancer were themselves the sole infective agents, that this cancer epithelium was practically normal epithelium only out of place, and that from the very commencement of the cancer it was growing in the lymph space, Dr. Lack concluded that if normal epithelium by some accidental means should obtain entrance into the lymph spaces it would find no barrier to its continued growth, and would produce all the phenomena of cancer. Accordingly Dr. Lack set to work to test his conclusion. He prepared an emulsion of the healthy epithelial cells from the ovary of a healthy rabbit, and placed them in the animal's peritoneum. The animal died fourteen months later, and on examination masses of growth were found in the abdominal and thoracic cavities having the characteristic features of typical ovarian cancer. The *Journal of Pathology* contains a more extensive account of this experiment. We sincerely sympathize with Dr. Lack in the unfortunate publicity that has befallen his experiment, before he has had an opportunity of confirming or condemning it by a series of experiments on the same lines.

Dr. Jardine read an interesting paper at the Edinburgh Obstetrical Society on the treatment of eclampsia by saline injections. He held that in most cases that came under treatment before convulsions came on it was easy to abort the attack by purgatives, diaphoretics, and diuretics, eliminating the poison, but that if convulsions had already set in it was a much more difficult task to obtain diuresis. With this end in view he had employed large saline injections into the subcutaneous tissues. In most of the cases he had used a mixture of one part of bicarbonate of potash to three of common salt, a teaspoonful to the pint of sterilized water at 100° F. The potash was added because of its diuretic action, and no poisonous effects had been observed. If such occurred it was

always possible to use acetate of sodium, which though less diuretic was also less toxic than the acetate of potash. The injection could be made in any part where the tissue was lax. After delivery Dr. Jardine had selected the lax abdominal wall, and before delivery the edge of the breast, and in either situation it was quite easy to run in a pint in four minutes, and the whole would be absorbed in from fifteen to twenty minutes. It is difficult to subscribe to Dr. Jardine's suggestion that the bicarbonate of potash may help to neutralize the poison in the blood. Moreover, on the evidence supplied by Dr. Jardine in his communication it is difficult to see that the addition of bicarbonate of potash carries with it any special advantage over the normal saline solution. Dr. Jardine had found benefit from the employment of veratrum along with the saline injections, but he was far from considering it a specific; certainly it was preferable to morphine, which, though concealing the outward expression of the condition, served assuredly to aggravate the cause.

Dr. Yonge sounds a note of warning against the common belief that orthoform as a local anesthetic to ulcerated surfaces is quite innocuous. It seems that in a small percentage of cases orthoform, like pure carbolic acid, tends to produce sloughing from local necrosis; the process can, however, be readily checked by withdrawing the drug. Brocq also has observed an inflammatory reaction of the skin, and Epstein vomiting, collapse, and other disorders when the drug is given by the mouth.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

Dr. Plicque, of Paris, has published recently in the *Presse Médicale* an article on the treatment of fibrous phthisis. A few words on the various points shown up by Dr. Plicque may prove of interest to our readers. Fibrous phthisis is more troublesome but less dangerous than the ordinary form. The cough is more painful, more hacking; hemoptysis is more frequent, abundant, and tenacious. Slight attacks of congestion are often observed, but with all this the local lesions do not increase in intensity. The reason for this benign tendency is that, as Landouzy has said, there is a tendency to sclerosis due to the general condition of the patient. On account of its special attributes, this form of phthisis offers special indications, and what is less known, special contraindications. The air cure should be followed out with certain precautions. No very high altitudes, no exaggeration in muscular exercise should be practiced, for the open country is quite sufficient in spring, summer, and autumn. In winter the patient should be sent to Pau, Mentone, Cannes, Grasse, San Remo. The fits of coughing should be suppressed as much as possible, and excessive talking is to be discountenanced.

The food cure cannot be applied here as in most cases. The kidney, without being very much attacked, is in far from perfect condition, and all excessive formation of toxins is apt to irritate the glandular tissue and provoke albuminuria. It would seem that milk is indicated, but its use cannot be continued very long, as it is apt to cause weakness, excessive perspiration, and polyuria. Raw meat, powdered vegetables, the yolks of very fresh eggs, and white meats are easily taken and do not produce any bad results. Any symptoms of intolerance, such as palpitations, vertigo, and expectoration, are easily stopped by the use of a milk diet.

All the preceding remarks apply as well to the use of drugs.

On account of the congestive tendencies, such drugs as iodine, sulphur, and arsenic should be used with care. For instance, mineral waters containing arsenic or sulphur should be recommended with caution. Le Mont Dore, La Bourboule Luchon, Les Eaux-Bonnes, offer a certain efficacy in some forms of fibrous phthisis, but when employed without moderation may cause congestion and hemorrhage. One of the best drugs that can be used against dyspnea is iodide of sodium or iodide of potassium. Dr. Potain, the celebrated heart and lung specialist, uses the following formula:

Chloride of sodium, 10 grammes;
Bromide of sodium, 5 grammes;
Iodide of sodium, 1.50 grammes;
Distilled water, 100 grammes.
From one to three teaspoonfuls a day in a cup of milk.

Iodoform would also seem to be indicated on account of its tendency to prevent hemorrhage. Five to ten centigrammes a day is sufficient. For instance:

Iodoform, 0.05;
Dover's powder, 0.10;
Tolu balsam, q. s.
For one soft pill. One or two daily.

If there is intolerance, hypodermic injec-

tions consisting of the following may be employed:

Iodoform, 1 gramme;
Sweet almond oil, 20 Cc.
One injection daily of one cubic centimeter.

In case of hemorrhage, fractional doses of ipecacuanha are efficacious.

Lastly, revulsion is often useful. The thermocautery is to be preferred to blisters or tincture of iodine on account of the condition of the kidney.

At a recent meeting of the Academy of Medicine Professor Landouzy presented, on behalf of Dr. Carsoute, a physician of the hospitals of Marseilles, a note on the use of carbonate of creosote in the treatment of non-tuberculous bronchopneumonias. The doses given varied from five, ten, fifteen, up to twenty grammes. Given in this manner, this drug brings about the asepsis of the pulmonary tract, and there is consequently a lowering of the temperature, a shortening of the duration of the illness, and a rapid amelioration which is shown by the disappearance of the functional and physical symptoms.

A recent treatment for chronic urethritis is that indicated by Dr. Desnos, surgeon of the hospitals, and Dr. Guillon, of Paris. Picric acid is the agent used, and the authors of this new treatment have insisted on its harmlessness when cautiously employed. Instillations are made every other day with a one- or two-per-cent solution, twenty to eighty drops being used. With the first group of seventeen chronic cases, thirteen cures have been obtained, two noticeable ameliorations, and two failures, which were operated upon later. When the urethritis is of tuberculous origin the results are not so brilliant, only two cures out of twelve cases being obtained.

At the meeting that took place at the Academy of Medicine on July 18, Professor Robin and Dr. Leredde spoke of the work they have done in establishing a correlation between diseases of the skin and diseases of the stomach. In 422 cases of stomach affections, cutaneous manifestations were found in 129. Thirty patients suffering from prurigo, lichen, or eczema were examined as to the condition of their gastric juice, and in all there were found butyric and lactic acid. This form of dyspepsia is very often latent. By administering jaborandi the perspiration was increased, and on examination was found to contain a greater coefficient of acidity than is usually found. Perhaps the alteration of the skin is due to this excess of excretion. The treatment was a direct result of this conception, and out of seventeen cases there were seven cures. As a means of checking gastric fermentation Dr. Robin employed fluoride of ammonium:

Fluoride of ammonium, 0.20 centigramme;
Distilled water, 300 grammes.
Two large spoonfuls to be taken every day.

As a means of checking butyric fermentation Dr. Robin has found it advisable to give iodide of bismuth and cinchonine 1 to 5 centigrammes, or iodated sulphur 10 to 20 centigrammes, which was given in the middle of each meal. In old cases sterilized milk is beneficial. As a means of employing local treatment the best method is to apply on the skin silicated water containing carbonate and silicate of calcium. This preparation is dusted over the diseased surface, and an application is used as a sort of varnish, containing a greater or smaller quantity of aloes, according to the duration of the affection.

It is a well known fact that the number of patients going to the spas in France has not increased in as noticeable a manner as in Germany. The causes of this are manifold. The administrations of the different establishments are not so progressive in France as in Germany. There is not that constant striving to improve the conditions of the watering-place. But outside this purely material cause and the fact that some waters are no longer thought to be efficacious, another reason is that the French physician graduates without having any definite idea about the value of the various waters that can be used in France, and not having sufficiently precise indications on this subject, he prefers to abstain from ordering them. There has been instituted recently a committee of well known physicians, under whose management a series of excursions to the waters will be undertaken. On September 2 a trip will be taken to the waters of the central part of France and of Auvergne, such as Néris, La Bourboule, Mont Dore, St. Nectaire, Royat, Chatel Guyon, Vichy, Bourbon Laachambault, Bourbon-Lancy, St. Honori, Pougues. Professor Landouzy, of the Faculty of Medicine of Paris, will accompany the group of physicians and students who will subscribe to this trip, and at the different spas will give an explanation of their usefulness and action. This excursion will last eleven days, and will end at Pougues.

—THE—

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Original Communications.

ON THE DESTRUCTION OF MOSQUITOES—A CONTRIBUTION TO THE STUDY OF CULICIDAL SUBSTANCES, BEARING UPON THE PREVENTION OF MALARIA BY THIS MEANS.

BY DR. A. CELLI,
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AND
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Assistant in the Institute of Hygiene, University of Rome.

[Translated from the Italian by DR. J. I. EYRE, of Rome.]

The pain and discomfort produced by the bites of mosquitoes in man have been universally recognized even from ancient times. And now, after the latest studies, by which it has been proved that the insects of this family of Culicidæ are the definitive host of the malarial parasites, to the above must be added the enormous injuries they cause by their bites.

The destruction, therefore, of these insects which are so injurious to us, and nothing but injurious, has become a social necessity.

Popular experience has already made some attempts in this direction, which we shall have occasion to refer to later on. But to-day an apposite experimental study that, succeeding, would have an importance analogous to that which disinfecting substances

have had for bacterial diseases, has become more than ever essential.

It is necessary, however, above all, to fix well certain principal biological conditions in which the mosquitoes exist that are to be destroyed; and more especially the genus and species to which they appertain, the age, time of captivity, certain pathological states, and the stage of development.

Genus and Species.—It not being known whether to the means of destruction the various genera and species oppose an equal resistance, the necessity arises of indicating clearly and distinctly the zoological names of the mosquitoes that are experimented upon.

Age.—This has an influence in the larval stage as well as in that of the winged insect. For example, we find that the minimum resistance, other things being equal, is offered by the larva directly it comes out of the egg, and by the mosquito soon after it develops from the nympha; and the maximum by the larva which is about to become a nympha, and by the perfect insect captured in the air.

Time of Captivity.—It is rarely that the laboratory environment can be as favorable to the life of the mosquitoes as the natural environment; therefore both the larvæ and the perfect mosquitoes directly they are captured have always a greater resistance to the culicidal substances; and in consequence all our observations refer to a material freshly arrived from the Roman Campagna.

Pathological States.—Sometimes directly after they are found, more frequently after they have been in the laboratory, the larvæ present, in greater or less numbers, a waxy whitening of their bodies, in which state they offer less resistance to the destroying agents. And, above all, it is necessary to note particularly the *stage of development*—that is, whether they be eggs, larvæ, nymphæ, or perfect mosquitoes; in this last stage they live in the air, in the others they live in water; hence the necessity of varying the culicidal substances according to the environment where they live. And even when they are in the water the resistance of the larvæ varies very much from that of the nymphæ, these latter being, as a rule, more resistant than the former.

Thus the classification of the culicidal substances must be made on the basis of the stage of development of the insects which one wishes to destroy. We therefore have:

1. Substances that kill the eggs.
2. Substances that kill the larvæ.
3. Substances that kill the larvæ and nymphæ.
4. Substances that kill the perfect mosquitoes.

SUBSTANCES THAT KILL THE EGGS OF MOSQUITOES.

We have experimented on the eggs of the *Culex pipiens*, the most easy variety to be obtained in quantities, and we have found that those substances, even in greater proportions, which kill, as we shall see, the adult larvæ, are not always sufficient to kill the eggs.

However, the very young larvæ, especially directly after they are born, resist but little the action of these substances, even when very diluted. This, from the practical point of view, is important, inasmuch as it assures us that even with very dilute substances, and consequently cheap ones, when the eggs do not die, the larvæ die directly they come out of the eggs; which practically is the equivalent of the destruction of a species.

SUBSTANCES THAT KILL THE LARVÆ OF MOSQUITOES.

The *popular* experiments made for this purpose in America are reduced to the employment of a very common substance in use in that country fifty years ago, but never universally diffused—viz., petroleum—and to the more recent use of permanganate of potassium.

The history of the other researches already made for the same end is very short, inasmuch as it is limited, as far as we know, to the American studies.

In America mosquitoes are a regular plague in many localities, and consequently several entomologists have tried to free these places from them—thus, in 1890, Robert H. Lamborn,* and under his direction Aaron, Week, Bentenmüller, Macaulay, McCook; and later† Howard (1893), Herbert Osborn (1892–96),‡ chief of the Division of Entomology, Department of Agriculture, have carried out researches. The results were not, in truth, very comforting, and they refer almost exclusively to the use of petroleum.

Thus Aaron says that, in 1890, he had found that a drop of petroleum (!) dropped into a puddle of ten square feet killed in fifteen minutes (!) all the larvæ and nymphæ of the mosquitoes which existed there, while

*"Dragon Flies *vs.* Mosquitoes. Can the Mosquito Pest be Mitigated?" New York, 1890.

†"Die Mosquito-Malaria-Theorie," von G. H. F. Nuttal. *Centralbl. f. Bakteriol.*, vol. xxv, 1899.

‡U. S. Dept. of Agriculture, Division of Entomology. Bulletin No. 5, New Series, 1896.

the Crustaceæ and the larvæ of the Odonatæ or Libellulidæ survived.

Howard states that he succeeded, in 1893, in killing with petroleum all the insects in a pond of sixty square feet; and in the following year, having on June 4, in the neighborhood of Washington, covered a pond of 100 square feet with a stratum of petroleum (five gallons), in June and July he saw no mosquitoes develop, though they usually infest that place. Consequently, he maintains that with a little petroleum one can free many localities from mosquitoes.

Osborn also maintains that "probably the best and easiest of all remedies against mosquitoes is the use of petroleum on the surface of ponds." And he adds that this use was already known; but having made, in 1892, experiments on a large scale, he found that an ounce of petroleum for every fifteen square feet of surface of a small pond was sufficient for this purpose for a month, but that sometimes it was necessary to renew it more frequently. Since 1892, having repeated his experiments, he assures us that he has succeeded with petroleum alone in freeing two localities from mosquitoes; so that, in 1896, he proposed to experiment with it on large ponds, the cost being insignificant, and it being possibe to scatter it with a large broom against the wind from the dikes or from a boat.

What the result of these experiments has been we do not know; nor does the above mentioned very minute and accurate review of Nuttal, which has lately appeared, mention it.

For our part, after many trials, we have convinced ourselves that, apart from the question of expense, which outside of America is very considerable, the action of petroleum in destroying the larvæ of mosquitoes does not certainly occupy the first place, and it is also true that in some cases the use of other substances would not be more advisable.

Up till now very few substances have been used for this purpose in this relation; we know only that Whitfield in Atlantic City has added green vitriol to water containing larvæ of mosquitoes.

We know of no precise researches made with potassium permanganate, one of the substances much extolled for the destruction of mosquitoes.

Among the indirect researches that are directed to destroy the malarial germs in a locality by means of permanent drainage (*bonifica*), we may mention that Lanzi and Terrigi, in 1873, extensively applied a treatment of caustic lime mixed with water in the excavations in the Colosseum, and it was then observed that the workmen employed in the excavations did not suffer from malarial fever. An analogous experiment with identical result was subsequently made by Salisbury.*

We, however, have wished to make a study, as complete as possible, of all those chemical substances which, owing to their more or less low price, could be freely used for the destruction of mosquitoes in water.

As the criterion for judging the larvicidal action of a given substance, we have taken the time it takes to kill the larvæ, considering that substance inefficacious which does not kill them at most within three days (seventy-two hours). And, consequently, according to this criterion all the substances up till now tested by us are divided into two great categories:

A. SUBSTANCES THAT DO NOT KILL THE LARVÆ OF MOSQUITOES.

Among these, which now amount to 198, we find, besides the 167 coloring substances:

Permanganate of potash in solution $\frac{N}{100}$ and 1:1000.

Arsenious acid in ammoniacal solution 10:1000.

Various soaps (except an extract of tobacco).

Petroleum itself (so extolled by the Americans), also in the proportion of 0.05 per 100 c.m.q. of surface at a temperature of 18° C.

Ammonia (1:100 at 18° C.); tannic acid (1:1000); borax (1:1000).

Gaseous water (with CO_2), sulphurous water (with H_2S).

Analogously we have observed that the larvæ and nymphæ of mosquitoes live very well in the Aque Albule of Tivoli and in sulphurous waters of the same type.

B. SUBSTANCES WHICH KILL THE LARVÆ OF MOSQUITOES.

We here give the list of these substances, dividing them into two tables, in the first of which (see Table I) we enumerate various chemical substances, and a few vegetable infusions; in the second (see Table II) we place the most efficacious of the staining substances derived from coal tar; in the third (see Table III) we analyze the action of the most active among these last.

* Cited by Tommasi-Crudeli, "Sulla produzione naturale della malaria." Memoria 2a. Accademia dei Lincei, 1880.

TABLE I.

Action of culicidal substances on larvæ of mosquitoes (*C. pipiens, C. annulatus*) at the ordinary temperature (18° to 20° C.).

No.	Substances used.	Maximum duration of life of the larvæ.
1	Tobacco leaves, aqueous saturated solution of	3 hours.
2	Potash N/10	4 "
3	Powder of chrysanthemums (unexpanded flowers) 0.003:1000	7 "
4	Corrosive sublimate 1:1000	10 "
5	Powder of chrysanthemums (2d quality) 0.06:1000	12 "
6	Sulphurous water, non saturated	12 "
7	Salt water (5-10:100 NaCl)	15 "
8	Extract of tobacco of commerce at 10:100	20 "
9	Bisulphites of soda and of potash 1:100	20 "
10	Powder of chrysanthemums (2d quality) 0.010:1000	24 "
11	Sulphate of copper 1:100	24 "
12	Sulphate of iron 1:100	24 "
13	Coal tar	30 "
14	Ammoniacal water from coal-gas	45 "
15	Milk of lime 5:100	48 "
16	Potassium bichromate $2+H_2SO_4$ 3 at 1:1000	48 "
17	Sulphuric acid 1:1000	48 "
18	Quassia, saturated aqueous infusion of	72 "
19	Solanum nigrum, aqueous infusion of	72 "
20	Daphne guidium, aqueous infusion of	72 "
21	Sodium sulphuret, saturated aqueous solution of	72 "
22	Potassium permanganate 5:1000	72 "

TABLE II.

Action of aniline colors on larvæ of mosquitoes (*C. pipiens, C. annulatus*).

No.	Colors used (0 50:1000).	Maximum duration of life of the larvæ.
1	Gallol	12 hours.
2	Green malachite A	12 "
3	A. Erastz II	24 "
4	Yellow martins (sodic salt)	24 "
5	Methyl-violet	24 "
6	Ethyl-violet	24 "
7	Azoviolet	24 "
8	Chrysoidin cryst	24 "
9	Cyanin	24 "
10	Green malachite B	48 "
11	Yellow martins	48 "
12	Rhodamin B	48 "
13	Victoria blue	48 "
14	Dahlia	48 "
15	Gentian violet	48 "
16	Pure neutral violet	48 "
17	Nachtblau	48 "
18	Pure brown	48 "
19	Basle blue B B	48 "
20	Toluidin blue	48 "
21	Aurin	48 "
22	Curcumine, extra F F	48 "
23	Phosphin, extra	48 "

TABLE III.

Culicidal action on the larvæ of mosquitoes (genus Culex) of aniline colors in diverse proportions.

No.	Color.	Proportion per mille.	Duration of life of the larvæ.
1	Gallol	0.50	6 to 12 hours.
		0.025	16 to 24 "
		0.0125	24 to 36 "
		0.0062	30 to 72 "
		0.0031	36 to 96 "
		0.0015	48 to 108 "
		0.0007	72 hours, survive.
2	Green malachite A.	0.50	6 to 12 hours.
		0.025	24 to 26 "
		0.0125	34 to 48 "
		0.0062	36 to 108 "
		0.0031	48 hours, survive.
		0.0015	Survive, *id.*
		0.0007	*id.* *id.*

Once for all we state that the results synthetically and summarily shown in the tables represent the mean of the experiments, always repeated many times, and with a large number of culicides.

From the three preceding tables it results that:

1. Among the mineral substances, permanganate of potash even in the considerable dose of 5:1000 is, among the larvicidal substances, one of the slowest to act; lime, sulphate of iron and of copper, and NH_3, act rather slowly even in very large proportions; sulphurous water, even when not saturated with SO_2, is one of the most active larvicidal substances; corrosive sublimate in the strong dose of 1:1000 kills the larvæ slowly, but not the nymphæ.

2. Among the vegetable substances, very potent poisons to the larvæ are the leaves of strong tobacco and some commercial insecticide powders, which are made of the unexpanded flowers of chrysanthemums. Other commercial insecticide powders were either less active or altogether inefficacious. Then comes the commercial extract of tobacco, and finally a saturated aqueous infusion of quassia, of *Solanum nigrum*, and of *Daphne guidium*. We shall see that the above mentioned powders in larger proportions also kill the nymphæ.

3. Of the aniline colors (blue, violet, red, yellow, and green) that we have experimented with, the two which have the most energetic action are the gallol of Weiler-ter-Meer of Uerdingen, and the green malachite of Actiengesellschaft für Anilin-Fabrikation of Berlin. Of these two colors the gallol is the more active. Its certainly larvicidal dose is 0.0062:1000; that of the former is 0.0125; the minimum larvicidal dose of the first may descend to 0.0007, while that of the second is never less than 0.0037.

SUBSTANCES WHICH KILL LARVÆ AND NYMPHÆ OF MOSQUITOES.

We have already seen that some substances which readily kill the larvæ have no action on the nymphæ, so that these may complete their development and transform themselves into the aerial insect.

We shall now see which are the substances that kill both the larvæ and the nymphæ of mosquitoes; they are arranged in the following table according to the time required for killing the larvæ:

TABLE IV.

Action of culicidal substances on larvæ and nymphæ of mosquitoes (*C. pipiens, C. annulatus*) at the ordinary temperature (18° to 20° C.).

No.	Substances used.	Maximum duration of life.	
		Larvæ.	Nymphæ.
1	Saturated sulphurous water (SO_2).....	10 to 50 min.	25 min.
2	Potassium permanganate 0.3+HCl 5:1000.....	15 min.	1 hour.
3	Salt water (saturated solution of NaCl).....	30 "	1 "
4	Chrysanthemum powders (unexpanded flowers) 0.50:1000.....	1 hr. 15 min.	1 hr. 35 min.
5	Chrysanthemum powders (2d quality) 0.50:1000.	2 " 30 "	3 hours.
6	Petroleum Cc. 0.20 in 100 c.m.q. of surface.....	4 hours.	4 "
7	Potassium permanganate 2:100.....	4 "	8 "
8	Ammonia 2:100	5 "	6 "
9	Oil (a very thin stratum covering all the surface of the liquid).....	6 "	4 "
10	Petroleum Cc. 0.10 per 100 c.m.q of surface.....	6 "	6 "
11	Potassium permanganate 1.5:100.....	6 "	18 "
12	Chrysanthemum powders (unexpanded flowers) 0.006:1000.....	7 "	9 "
13	Formalin (formaldehyde 40:100).....	8 "	12 "
14	Carburet of lime 10:1000	8 "	8 "
15	Chrysanthemum powders (2d quality) 0.06:1000.	11 "	12 "
16	Lysol 0.5–0.1:100	12 "	24 "
17	Milk of lime 10:100.....	24 "	36 "
18	Commercial chloride of lime 1:100.....	24 "	48 "
19	Commercial chloride of lime 1:1000.....	36 "	60 "
20	Potassium bichromate 1:1000	48 "	60 "
21	Potassium permanganate 1:100.....	48 "	72 "

From the preceding table it clearly results that:

1. The destruction of the nymphæ is in general a rather difficult task, this being the stage of development in which the mosquitoes oppose the greatest resistance to the destroying agents. In fact, as a rule, the nymphæ take a longer time to die than the larvæ, except that in oily substances, which float on the surface, where the nymphæ generally go to breathe, the latter die before or at the same time as the larvæ.

2. Classifying the substances used according to the time required to kill the larvæ, we find in the first line sulphurous water saturated with SO_2, and then potassium permanganate mixed with HCl. The permanganate alone acts much more weakly even in greater proportions (2:100–1:100). Very efficacious are light oily substances, among which is petroleum—that, however, must act at the ordinary temperature, in the proportion at least of 0.10 Cc. per 100 c.m.q. of surface. Common oil has a perfectly analogous action.

Salt water, which at 5–10:100 (see Table I) kills the larvæ in fifteen hours, in concentrated solution kills the larvæ in thirty minutes and the nymphæ in an hour.

Very active also are the above mentioned commercial insecticide powders obtained from chrysanthemum flowers; they act through their active principle, which is soluble in water, and is a true larvicidal and nymphicidal poison.

Caustic lime and ammonia only act in strong doses, and thus also chloride and carburet of lime.

3. Of the most potent disinfectants of bacteria, formalin and lysol are not very active as culicidal substances, and corrosive sublimate, as we have already seen (see Table I), is even less so.

4. The nympha stage being very transitory, in the destruction of mosquitoes it may be neglected in practice.

(A) CONDITIONS THAT MODIFY THE ACTIVITY OF THE SUBSTANCES WHICH KILL LARVÆ AND NYMPHÆ OF MOSQUITOES.

Naturally these conditions are multiple, and we here mention the principal ones: the frequency or not of cooperating substances, the so-called mordants, direct sunlight, the physical and chemical properties of the waters, the state of the waters—that is, the mode in which they are taken—and the age of the larvæ.

1. *Mordants.*—Table IV demonstrates that the permanganate of potash, while it has by itself alone a rather weak larvicidal action, is much strengthened in this action by the addition of hydrochloric acid. But the addition or not of these mordants acquires special importance in the presence of the aniline colors, which we have already seen were capable of killing the eggs or the larvæ of mosquitoes. Consequently we have thoroughly studied this argument for the above mentioned two most active colors; and from the very numerous experiments we have been able undoubtedly to conclude that:

(*a*) Sulphate of iron, lime, chloride of sodium, bisulphate of potash, chromic acid, sulphuric acid, added in equal or double proportion to gallol, hasten a little the action to the extent that in a solution of gallol 0.50 or of mordant 0.50–1:1000, the larvæ die in the least time that the gallol alone requires —that is, in six hours. Chloride of lime, ammonia, iron, alum, borax, a mixture of bichromate of potash and sulphuric acid (1 to 3), do not augment the culicidal action of gallol, just as neither these, nor the other

mordants mentioned, in the proportions indicated, augment it with green malachite.

(*b*) Thus varying contemporaneously the quantity, *per mille*, of the color and of the mordant (selecting, for example, sulphate of iron), and varying either only the quantity of the color or only the quantity of the mordant, this does not produce a notable or decided auxiliary action. Perhaps the mordant is of some use in the minimum larvicidal solutions, rendering them more certainly fatal within seventy-two hours. But with such small results it is not worth the trouble or the expense to add the mordants. This is tantamount to saying that where they exist, for example, in salt water marshes or lakes, it is all the better.

2. *Direct Sunlight.*—This does not injure for a certain time the efficacy of the colors; on the contrary, in the weak coloring solutions in marsh waters, retarding the putrefaction, it makes the larvicidal action last for a long time. Neither does it disturb the action of petroleum, which, however, is disturbed, as we shall see, by the temperature, and therefore also by the summer sun.

3. *Physical and Chemical Properties of the Waters where Larvæ and Nymphæ of Mosquitoes Live.*—One readily understands that they have an importance of the first order. Among the *physical properties* we note at once:

(*a*) Temperature.

(*b*) Turbidity by suspension of earthy particles. As regards this, we shall refer to it in the next section, where we shall treat of the influence of earth on some of the larvicidal substances.

That the *chemical properties* of the waters, where the mosquitoes pass a long portion of their lives, have much influence on the mode and on the time of their eventual destruction is readily understood.

For example, permanganate of potash, having to oxidize the organic substances, will be more readily destroyed in marsh waters, and also in sulphurous waters. Petroleum itself, evaporating and oxidizing, does not very long remain unaltered on the surface of waters. Lime and the alkalies in general combine with the CO_2 which, by the organic decomposition of the earth and of the waters, actively develops.

Among the aniline colors there are some that are little stable; it therefore became necessary, for the practical scope of these researches, to investigate how they act in marsh waters eventually putrid, and in sulphurous waters, which are, as we have said, with us so frequently the nests of mosquitoes. We knew already that the salt of the sea water of the marine ponds along our malarious coast acts as a mordant.

(*c*) Marsh waters. By repeated experiments we have persuaded ourselves that both

TABLE V.

Action of culicidal substances on larvæ and nymphæ of mosquitoes (genus Culex) at diverse temperatures (18° to 20° and 30° to 35° C.).

No.	Substances used.	Maximum duration of life of the larvæ.		Maximum duration of life of the nymphæ.	
		18° to 20° C.	30° to 35° C.	18° to 20° C.	30° to 35° C.
1	Petroleum Cc. 0.20 per 100 m. q	4 hours.	3 hours.	4 hours.	3 hours.
2	Petroleum Cc. 0.10 per 100 m. q	6 "	5 h. 30 min.	6 "	5 "
3	Saturated sulphurous water	20 minutes.	15 minutes.	25 minutes.	20 minutes,
4	Ammonia 2:100	5 hours.	30 "	2 hours.	1 hour.
5	Lysol 0.50:100	12 "	40 "	24 "	40 minutes.
6	Milk of lime 5:100	48 "	2 hours.	Survive.	2 hours.
7	Saturated infusion of quassia	72 "	17 "	"	24 "
8	Gallol 0.0125:1000	24 "	12 "	"	Survive.

The above figures clearly show the influence of temperature on the power of the various substances most efficacious in killing larvæ and nymphæ of mosquitoes. With the rise of temperature, even within the limits of our hot summer, the time of destruction both of the larvæ and of the nymphæ is shortened, except that with petroleum, which, therefore, does not act chemically, but only mechanically —that is, subtracting the atmospheric air by means of its impermeable stratum.

gallol and green malachite, indifferently with or without a mordant, act well even in marsh waters; for example, in the proportion of 0.025:1000 the first repeatedly killed the larvæ of Culex in eight to ten hours, the second in ten to twelve hours. The same can be said of the above mentioned insecticide powders.

(*d*) Sulphurous waters (Aque Albule of Tivoli). With the same two colors, in similar proportions, they act like the marsh waters.

Experiments on a large scale made in the Campagna within ponds of marshy and sulphurous waters have confirmed the above mentioned favorable results obtained in the laboratory researches. The insecticide powders also act in sulphurous waters.

(*e*) Putrid waters. Putrefaction diminishes the efficacy of petroleum, perhaps oxidizing it, and renders it less durable. Instead, even in putrid liquids, gallol at 0.50:1000 acts equally well; still more, it slackens the decomposition. Nevertheless, both in the weaker coloring solutions and in those losing their color through time, directly putrefaction intervenes the larvicidal efficacy of this substance is arrested and suddenly interrupted. The same happens for the mentioned insecticide powders.

4. *State of the Waters* (*Mode of Taking, etc.*).—Above all, it is important to observe whether the earth in the bottom of the marshes, ponds, or lakes, or that in suspension in the waters, alters the larvicidal energy, especially of the aniline colors. For this purpose many comparative experiments were made in large vessels, with or without earth at the bottom, with the two most efficacious colors, mixed or not with mordant, and used in different proportions. We have been thus able to demonstrate that with the presence of earth in the bottom of the vessels the larvicidal action does not change, and with gallol it is maintained, as we shall see, for a long time in proportion to the depth of the water above the earth.

The extension of the surface of the waters in relation to their quantity acquires a notable value for those substances which act on the surface, cutting off or diminishing the area and the respiratory air that the larvæ and nymphæ absolutely require.

In practice there are the two extreme cases of lakes and ponds with a deep bottom, or of small puddles and shallow pools with a large and more or less irregular surface. In both cases the action of petroleum was the object of special researches.

TABLE VI.

Culicidal action of petroleum on larvæ and nymphæ of mosquitoes (genus Culex) at ordinary temperature.

No.	Quantity of petroleum in Cc.	Surface of water in c.m.q.	Quantity of water in liters.	Maximum duration of life.	
				Larvæ.	Nymphæ.
1	0.02	100	1	Survive.	Survive.
2	0.05	100	1	"	"
3	0.10	100	1	6 hours.	5 hrs. 30 min.
4	0.20	100	1	4 "	4 hours.
5	2.00	1000	40	4 "	4 "
6	2.00	10000	40	Survive.	Survive.

From these figures it clearly results that petroleum develops a purely mechanical larvicidal action—that is, subtracting the air. The quantity of it necessary is therefore proportionate to the surface of water to be disinfected. And if the stratum does not cover the whole surface from contact with the atmosphere, its action immediately becomes *nil.*

5. *Age of the Larvæ.*—As we have said in the beginning and have repeated, *apropos* of the destruction of the eggs, the very young or young larvæ are much more easily destroyed than the adult; this is clearly shown in the following table:

TABLE VII.

Action of culicidal substances on very young larvæ of mosquitoes (genus Culex) at ordinary temperature (18° to 20° C.).

No.	Substances used.	Maximum duration of life.	
		Young larvæ.	Adult larvæ (control).
1	Milk of lime 1:1000.....	72 hours.	Survive.
2	Salt water 10:1000.....	72 "	"
3	Salt water 5:100.....	2 "	15 hours.
4	Petroleum 0.05 per 100 c.m.q..	5 hrs. 30 min.	Survive.
5	Petroleum 0.10 per 100 c.m.q.....	3 hrs. 30 min.	6 hours.
6	Gallol 0.50:1000.....	2 hours.	12 "
7	Gallol 0.025:1000.....	4 to 5 hours.	24 "
8	Gallol 0.0125:1000.....	6 hours.	24 "
9	Gallol 0.0062:1000.....	8 to 12 hours.	30 "
10	Gallol 0.0031:1000.....	14 to 16 hours.	30 "
11	Gallol 0.0015:1000.....	24 hours.	48 "
12	Gallol 0.00078:1000.....	36 hours.	Survive.
13	Green malachite 0.50:1000.....	3 to 6 hours.	12 hours.
14	Green malachite 0.025:1000.....	12 hours.	36 "
15	Green malachite 0.012:1000.....	18 hours.	Survive.

Substances which Kill the Larvæ and Nymphæ of the Genus Anopheles.—Up till now we have seen that the larvæ and nymphæ of this genus have the habit of living rather isolated, and they are never found in the malarogenous puddles and ponds in such large numbers as those of the genus Culex. Consequently we have not been able to experiment on material so exuberant as that of the other genera. Nevertheless, of the very young and adult larvæ, as well as of the nymphæ of the two species Claviger and Bifurcatus, we have had sufficient to test them with lime, permanganate of potash, common salt, sulphate of iron, sulphurous water, sublimate, lysol, common oil and petroleum, infusion of tobacco, gallol, and green malachite; and always contemporaneously, for control, we have tested the same substances with the very young and the adult larvæ of the genus Culex.

From the mean of all the experiments we have come to the conclusion that the larvæ

and nymphæ of the genus Anopheles do not oppose a resistance substantially different to the deleterious action of those among the most efficacious larvicidal substances.

(B) DURATION OF ACTION OF THE SUBSTANCES WHICH KILL LARVÆ AND NYMPHÆ OF MOSQUITOES.

This condition is very important from the practical point of view, especially in relation to the cost of the destruction of mosquitoes.

Also in sulphurous waters, as in those which are very marshy, the duration of the effect of the gallol is longer than that of green malachite. Indeed, one sees at a glance that the latter loses its color immediately in aqueous solution, still more if the mordant sulphate of iron be added, and most rapidly after lime, does the color disappear. So that once more we observe the superiority of gallol over green malachite for this larvicidal scope. In all the above mentioned cases the larvicidal efficacy ceased instantaneously, as has been recorded,

TABLE VIII.

Duration of action of culicidal substances on larvæ and nymphæ mosquitoes (genus Culex) in solutions of diverse ages.

Number.	Substances used.	Maximum duration of life of larvæ.				Maximum duration of life of nymphæ.			
		Recent solution	Solution 1 day old.	Solution 3 days old.	Solution 5 days old.	Recent solution.	Solution 1 day old.	Solution 3 days old.	Solution 5 days old.
1	Saturated sulphurous water at 18° C.....	20 min.	25 min.	50 min.	22 hours.	25 min.	1 hour.	24 hours.	Survive.
2	Chrysanthemum powder 0.50: 1000	2 h. 30 m.	24 hours.	36 hours.	Survive.	3 hours.	Survive.	.....	"
3	Chrysanthemum powder 0 25: 1000	4 hours.	72 "	Survive.	.....	6 "	"	.....	.....
4	Lysol 0.50: 1000 at 3°° C.	38 min.	2 "	52 hours.	Survive.	40 min.	6 hours.	Survive.	Survive.
5	Ammonia 2:1000 at 18° C.	5 hours.	12 "	14 "	"	6 hours.	Survive.	"	"
6	Petroleum 0.20 per 100 c m.q...	4 "	4 "	Survive.	"	4 "	4 hours.	"	.....
7	Petroleum 0.10 per 100 c.m.q.....	6 "	Survive.	. .....	.....	5 h. 30 m.	Survive.	"	.....
8	Carburet of lime 10:1000.....	5 "	12 hours.	36 hours.	Survive.	8 hours.	12 hours.	60 hours	Survive.

One clearly sees that of the various substances above used for several days in succession the first to lose its larvicidal action is petroleum, which, evaporating and decomposing, no longer covers all the surface of the water. In fact, in a dose of 0.20 Cc. per 100 c.m.q. it lasts for two days at 18° C.; but at 35° to 57° C. it no longer acts after one day, as also in the minimum larvicidal dose of 0.10 Cc. per 100 c.m.q. The duration of this larvicidal action of petroleum was then compared with that of the two most efficacious coloring substances. For this purpose many experiments were instituted in conditions very similar to those of the Campagna—that is, with marsh waters and with sulphurous waters in large receptacles with and without earth at the bottom. It was found that in marsh waters with earth at the bottom:

Gallol,	at 0.50:1000	after 45 days	is very active.
"	" 0.025:1000	" 14 "	"
"	" 0.0125:1000	" 4 "	"
Green malachite,	" 0.50:1000	" 12 "	"
" "	" 0.25:1000	" 12 "	"

For each of these colors, if the solution is in a very thin stratum above an abundant bottom of earth, the duration of the larvicidal action is shortened a little.

directly the putrefaction of the water began, under the form of a film of proteid on the surface.

The earth of the bottom, the direct sunlight, preventing this appearance of putrefaction even in very dilute coloring solutions, aid in prolonging the larvicidal efficacy of the substances mentioned. And in conclusion, from all our experiments, it undoubtedly results that gallol especially, among all the substances used by us for killing the larvæ of mosquitoes, has the most durable larvicidal efficacy.

(C) PRACTICABILITY.

Above all, it is necessary to know whether the substances largely employable in the Campagna with a larvicidal purpose, wherever the waters are the nest of the larvæ of mosquitoes, are of very easy use; whether they poison these waters eventually, potable for animals and man; whether they injure the plants of irriguous cultures, such as artificial meadow-lands (*marcite*) and rice-fields.

Among all the most efficacious larvicidal substances, sulphur dioxide is not practicable, because to produce burning sulphur more or less cumbersome apparatus are nec-

essary; and even if we were able to have the liquid contained in iron cylinders its use in the Campagna would not be easy, apart also from the question of price. Certainly it would be useful for destroying other insects noxious to agriculture; but it injures the vegetation, as we have proved by an experiment made on a large scale. If this vegetation be of that marshy nature which obstructs the canals and the course of the waters, it would be beneficial, but *vice versa*, if that of the irriguous cultures it would be injurious. For all these reasons the use of sulphur dioxide for larvicidal purposes can only be very limited.

Petroleum, instead, is of relatively easy use, even in large ponds and lakes. It does not kill the fish or the other inferior animals. The herbivora avoid drinking it. In stagnant waters the vegetation, sometimes very abundant on the surface, obstructs its mechanical action; in waters even slightly running its superficial stratum must be frequently or continuously renewed. We may add that its action is proportionate to its diffusibility on the surface of the waters. Consequently, the lighter the petroleum the better it acts; but in this case the action lasts for a shorter time. For example, in commerce there are some qualities of petroleum which, thrown on water, do not spread, but remain in the form of more or less large drops. These are least indicated for the destruction of the larvæ.

The insecticide powders previously mentioned are very easily used, and when swallowed even in big doses by herbivora they are not poisonous; but they are poisonous to some worms, Mollusca, and fishes.

The coloring substances, when they are, like the two above mentioned, very soluble and diffusible in water, are also very practicable and easily used. In practice it is convenient first to make very concentrated solutions, and then dilute these in the waters where the larvæ are to be destroyed. The colorimetric criterion is very convenient for regulating the proportion. Or better, the proportions per mille indicated in Table III are dissolved in water. Then one observes the shades of color of these solutions; and in this way with the eye one can obtain on a large scale the proportion necessary to be used, without his being obliged first to measure the quantity of the water to be freed from the larvæ. They destroy also all the animals which live in the water, including the fish and the tadpoles; consequently, contemporaneously are destroyed many other animals noxious to agriculture—that, from the point of view of aquarian economy, is not little.

As to the poisonous effect on mammifers, we already know that green malachite is innocuous.

We have found that gallol is innocuous in a dose of 0.20 grain hypodermically or by the mouth to a rabbit or a guinea-pig of 400 grammes, and 0.50 gr. to a dog of three kilogrammes. The minimum lethal dose for a guinea-pig and for a rabbit of the above weight is 0.50 gr., and death takes place in convulsions, as with carbolic acid.

At the autopsy we noted, when the inoculation had been made subcutaneously, a gelatinous edema of the color of the injected material in the inoculated spot, the viscera in general of a violet color, the bladder full of colored urine, flaccid kidneys, etc. When the inoculation had been made by the mouth the same conditions were noted, except those subcutaneous, besides a slight catarrhal condition of the intestine.

A larger dose than 0.50 gr. by the mouth caused vomiting in dogs; but less than 5 grs. did not kill them.

As to the doses in which gallol dissolved in water with a larvicidal scope is innocuous for mammifers, we have had the proof.

In one of our experiments made on a large scale for destroying the larvæ, it happened that a flock of sheep drank the water without suffering any injury.

These colors even in their strongest solutions do not in the least damage herbaceous plants, and consequently not the herbage of the Marcite, which has very well supported repeated and abundant consecutive irrigations.

For deciding the use of the most efficacious larvicidal substances the last word belongs to the

(D) PRICE.

We give the cost of the most easily used larvicidal substances, in their minimum lethal doses, at the rate of the current price:

PER CUBIC METER.

Culicidal substance.	Quantity.	Cost.
		Lire.
Ammonia of medium concentration 2:100	20 liters.	4
Carburet of lime 10:1000	10 kgr.	6.60
Chloride of lime 1:1000	1 "	0.26
Bichromate of potash 1:1000	1 "	1.60
Permanganate of potash 0.5–1:100.	5–10 "	10.50–21
Gallol 0 0062–0 0007:1000	6.20–0.7 gr.	0.04–0.005
Green malachite 0.0125–0.0031:1000.	12.50–3.1 "	0.19–0 05
Chrysanthemum powder (unexpanded flowers) 0.006–0.003:1000.	6–3 "	0.02–0.015
Chrysanthemum powder (2d quality) 0.01–0.06:1000	60–10 "	0.15–0.025

PER SQUARE METER.

		Without duty.	With duty.
		Lire.	Lire.
Petroleum 0.10.....	100 Cc.	0.016	0.065
Petroleum 0.20.....	200 Cc.	0.082	0.13

The great cost, in the larvicidal dose necessary, puts out of the question all the mineral substances, including the cheapest—chloride of lime. Evidently the vegetable powders, the coloring substances, and petroleum are the cheapest for making applications on a large scale. The chrysanthemum plants from which the said powders are obtained can be cultivated by us on a large scale, and therefore these powders will be had at a much lower price than they cost at present in the market.

The price of the two coloring substances is not definite, but when manufactured in large quantities it will become less.

An exact comparison cannot be made concerning the price between the coloring substances and petroleum, inasmuch as the latter acts in surface or by suspension, the former in solution. In any case the selection must be regulated according to circumstances, taking into consideration especially, as we have already stated, the duration of action, the conditions of the water, and its agricultural uses.

SUBSTANCES THAT KILL PERFECT MOSQUITOES.

Popular experience has specially preoccupied itself in finding substances which keep away mosquitoes from man and from his habitations. Thus it is known that the shepherds and peasants of the Roman Campagna endeavor to protect themselves from mosquitoes with fire and with smoke; for this purpose the straw huts in which they live, with the fire which gives off smoke in the middle of the floor so that the huts become full of smoke, are better than the masonry habitations, built without any special attempt at defense against malaria.

Lind (1779) asserts, besides, that wearing round the neck a little bag containing garlic and camphor serves as a prophylactic against the seasonal fevers! This was also recommended a few years ago by Mantegazza to our poor workers in the rice-fields. Thus also in Sardinia, at Crosei and Dorgàli, to protect themselves from mosquitoes, the people cut slices of garlic and rub them on the face and the other uncovered parts of the body, as also the bedsteads of the beds on which they sleep.

It is also known that some individuals have such cutaneous exhalations that they are never bitten by mosquitoes; and that the various substances which are sold for procuring quiet sleep in places infested with mosquitoes, rather than killing them, are more or less successful in causing them to disappear.

As far as we know, up to the present no experimental researches have been made with the purpose of killing the aerial mosquitoes. There are a few indirect observations, like those of Silvestri, also cited by D'Abbadie (1882), on the immunity of the workers in the sulphur mines of Sicily from malaria. And among the substances used for keeping away mosquitoes we may mention that Weeder* (1880) extols the burning of the leaves of *Mentha pulegium* (or its essential oil); Campbell (1891) praises much the smoke of chamomile, because it killed the mosquitoes in a room so that they could be swept away.

But wishing precisely and exactly to judge the real culicidal action of whatever substance, it is necessary to differentiate well apparent death from real death. This distinction is fundamental both for classifying in the order of their true culicidal action the various substances, and for not accrediting such an action to substances which in reality produce only apparent death. It is necessary, therefore, to experiment in such a way as not to fall into errors.

From a practical point of view we distinguish the substances used into three categories—that is, odors, fumes, and gases.

We have experimented with the odors in the small space of a bell-glass, placed over the odorous substance, in its turn contained in a glass capsule covered with a cloth; for the fumes and gases we have, instead, used a chamber of wood and glass, of the capacity of about 100 liters, invented and described by Rosenthal† for the scholastic demonstrations of the laws of ventilation in rooms. We thus had a space very similar to a living-room, and perfectly lighted, so that we were able to follow with the eye the behavior of the mosquitoes under the action of the various substances.

Each time we experimented with mosquitoes of several species captured in the Campagna, and to assure ourselves, when the experiment was finished, whether the

* Nuttal, *loc. cit.*

† "Vorlesungen uber die öffentliche und private Gesundheitspflege," Erlangen, 1887, p. 185.

animals were really dead or not, we collected them in receptacles, where we subsequently saw if they revived or not.

We thus have been able to observe whether the corners, eventually the fissures where the mosquitoes nest, offered more or less of a refuge against the volatile substances also efficacious against them.

Therefore, the results given below represent *what in reality is obtained when the whole space of a restricted room has been invaded by a given odorous or vaporous substance up to complete saturation.* For this purpose we burned, for example, within the above mentioned chamber, tobacco, pyrethrum powder, or resin, 2 grs.; chamomile flowers or quassia wood, 5 grs.; various leaves, flowers of chrysant. myc., and ordinary wood, 25 grs.; of the so-called culicidal cones we burnt no less than two within this small space.

Their mode and time of action are given in the following table:

TABLE IX.

Action of culicidal substances on mosquitoes (*C. annulatus, C. pipiens, A. claviger* and *bifurcatus*).

No.	Substances used—Odors.	Time in which death manifests itself.	
		Apparent.	Real.
1	Essential oil of turpentine..	1 min.	1 min.
2	Iodoform.....	10 "	40 "
3	Menthol.....	10 "	45 "
4	Nutmeg.....	10 "	2 hours.
5	Camphor.....	4 to 5 min.	4 to 5 hours.
6	Garlic.....	5 to 10 min.	5 hours.
7	Crushed pepper.....	20 min.	6 "
8	Naphthalin.....	10 to 35 min.	8 "
9	Roman wormwood.....	6 hours.	24 "
10	Onion.....	4 to 6 hours.	Survive.
11	Sage.....	.....	"
12	Rosemary.....	.....	"
13	Dry and fresh basil.....	.....	"
14	Cinnamon	.....	"
15	Asafetida.....	.....	"

No.	Substances used—Fumes.	Time in which death manifests itself.	
		Apparent.	Real.
1	Tobacco.....	Instantaneously.	1 to 3 min.
2	Chrysanthemum powder (unexpanded flowers)....	5 min.	1 hour.
3	Fresh leaves of eucalyptus.	3 to 5 min.	3 "
4	Quassia wood.....	16 min.	5 "
5	Pyrethrum powder.....	5 "	8 "
6	Dry leaves of *Mentha pulegium*.....	5 "	8 "
7	Pitch.....	10 to 18 min.	8 "
8	Flowers of *Chrysanthemum myconis*.....	10 min.	12 "
9	Leaves of dry basil.....	2 to 6 min.	24 "
10	Dry rosemary.....	7 to 12 "	24 "
11	Culicidal cones.....	12 min.	36 "
12	Dry chamomile flowers.....	4 "	36 "
13	Dry leaves of *Satureja hortensis*.....	4 "	36 "
14	Sage leaves.....	8 to 10 min.	36 "
15	Firewood.....	5 to 7 "	12 to 48 hrs.
16	Guaiacum resin.....	12 min.	Survive.
17	Myrrh.....	15 "	"
18	Elemi.....	15 "	"
19	Incense.....	15 "	"

No.	Substances used—Gases.	Time in which death manifests itself.	
		Apparent.	Real.
1	Sulphurous oxide.....	Instantaneously.	1 min.
2	Sulphureted hydrogen.....	"	1 "
3	Ammonia.....	1 min.	2 "
4	Illuminating gas.....	1 "	2 "
5	Formaldehyde (Trillat's apparatus).....	2 "	10 to 15 min.
6	Sulphuret of carbon.....	15 to 30 min.	Survive.
7	Acetylene.....	.....	"

In this table the various substances are arranged in the order in which they produced real death of the aerial mosquitoes. It is thus seen that we have among the odors turpentine and iodoform; among the fumes that of tobacco, whose infusion we have already seen is a potent larvicide; and among the gases sulphurous oxide, which we have already found very efficacious against the larvæ and nymphæ. Other substances very practical and consequently very useful are, among the odors, nutmeg, camphor, and garlic, the latter two already sanctioned by popular experience; among the fumes, those of chrysanthemum flowers, of fresh eucalyptus leaves, quassia wood, and pyrethrum. It is not, therefore, necessary for us to spend money in buying commercial preparations—every one can procure them himself; and in cases of necessity he can make use of the smoke of firewood, which by popular experience has been found useful in the huts where our cultivators of the *agro romano* have lived for centuries.

Of the gases, the most practical, and at the same time efficacious as a culicide, are the fumes of burning sulphur; sulphuret of carbon, so much extolled as an insecticide, is inactive in a large space, owing to its heaviness.

Definitely, the destruction of mosquitoes in houses is much more easy than any bacterial disinfection of habitations whatsoever.

CONCLUSIONS AND PRACTICAL COROLLARIES.

1. Of the whole period of the cycle of development of mosquitoes, the stages in which they are most easily destroyed are those of the larvæ and of the aerial mosquito; in the former stage they are the more easily killed the younger they are.

2. To kill the larvæ, among all the very numerous substances experimented with we have in decreasing order of culicidal action: (*a*) Among the mineral substances: sulphurous oxide, permanganate of potash with hydrochloric acid, common salt, potash, am-

monia, carburet of lime, corrosive sublimate, chloride of lime; and then the bisulphites, sulphate of iron and of copper, lime, bichromate of potash, sodium sulphite. (*b*) Among the organic substances: powders of the unexpanded flowers of chrysanthemums, tobacco, petroleum and oils, formalin, cresol, certain aniline colors (gallol, green malachite), coal tar.

Taking into consideration, however, the necessary larvicidal dose, the practicability, and the price, all the mineral and some of the organic substances must be excluded, and there remain the vegetable powders, petroleum, and the aniline colors.

3. To kill the aerial mosquitoes we have odors, fumes, and gases. In the first place, among the odors we have the essential oil of turpentine, iodoform, menthol, nutmeg, camphor, garlic; among the fumes that of tobacco, chrysanthemum powder, fresh leaves of eucalyptus, quassia wood, pyrethrum powder; among the gases, sulphurous oxide. It is, however, to be noted that for these odors, fumes, or gases to exercise their culicidal action they must fill or saturate the whole ambient; otherwise they produce only apparent death, or at the most only a culicifugal action, which sometimes in houses may be useful in protecting man from being bitten by mosquitoes, and in preventing the latter infecting him, when they have sucked the blood of malarious persons.

4. The problem of the destruction of mosquitoes is experimentally soluble; but practically it will only be so when economic interest desires it. In this latter sense it is remarkable that the old larvicidal use of petroleum has not become much diffused even in those places where it is very cheap; and it is probable that those substances which destroy other aquatic creatures injurious to agriculture will be preferred, and perhaps still more those which can be had by cultivating them on the spot. For example, by growing on a large scale the chrysanthemum plants (*Chrysanthemum cinerariæfolium*, etc.), from which the culicidal powders are obtained, it is very probable that one will succeed in making the malarial place itself produce that substance which will free it of the mosquitoes that infest it.

5. The opportune season for killing the larvæ is the winter, when they are in least number in the waters, and new generations are not born; consequently, this is the time most easy for attacking them. Destroying mosquitoes in houses is always possible, but to have the greatest effect it is also best to do it in the winter, when they all take refuge in inhabited places, or wherever else they repair. The more complete knowledge of their habits — that is, of the places where and the season when they nest — will aid very much the success of this destruction, which, even in the most favorable cases—that is, when hydraulic improvement (*bonifica*) will have exhausted its task — will not be such an easy work on a large scale as some persons believe and boast. Nevertheless, after the treasures spent by nations and private individuals for preserving vines from the oidium, the peronospora, and the phylloxera, we may hope that something will be done for protecting the life of man from the mosquitoes of malaria.*

REMOVAL OF TUMOR OF SUPRARENAL CAPSULE.†

By Mayo Robson, F.R.C.S.,
Leeds.

Mr. Robson related two cases in which he has successfully removed a tumor of the suprarenal capsule. One was in a woman forty-seven years of age, operated on in 1891, who died of recurrence of sarcoma and exhaustion a few months after the operation. His second case, a woman of sixty-two, operated on in 1897, is still living and well. The tumor removed was a struma lipomatosa supra renalis, described by Virchow.

In the first case the suprarenal growth was so firmly fixed to the top of the kidney that that organ had to be removed as well, but in the second case only a wedge-shaped piece from the top of the kidney was removed with the tumor. In the patient who is still living the removal of the tumor had not been followed by any pathological phenomena.

He also related a third operation, in which his colleague, Mr. Ward, removed a sarcoma of the adrenal from a child aged twelve months. The child died from shock within a few hours.

He gave a table of eight cases, of which four had recovered and four died. He be-

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* As these researches of ours on the destruction of mosquitoes are scarcely begun, and as we are continuing them, we shall be grateful to all those manufacturers of chemical products who will send us samples of their products, which owing to their *lowness* of price can be used on a vast scale, according to the criteria we have expounded.

† Abstract of a paper read before the British Medical Association, August, 1899.

lieved these to represent the whole operative surgery of the suprarenal capsule. He said that he thought the true secret of success lay in operating at an early stage of the growth, as in his second case.

After describing the operated cases Mr. Mayo Robson mentioned a case of sarcoma of the suprarenal capsule which he had observed throughout its whole course in 1875, and from this case and others that he had seen he drew attention to the following symptoms:

(*a*) Shoulder-tip pain. This was so well marked in all the three cases that he thinks it could not have been a mere coincidence, but was probably dependent on the disease. It may be explained by the fact of small branches of the phrenic nerve passing to the semilunar ganglia.

(*b*) Pain radiating from the tumor across the abdomen and to the back, not along the genito-crural nerve.

(*c*) Marked loss of flesh.

(*d*) Nervous depression with loss of strength.

(*e*) Digestive disturbance, flatulence, and vomiting.

(*f*) Presence of a tumor beneath the costal margin, right or left, at first movable with respiration, but soon becoming fixed. It can be felt in the costovertebral angle posteriorly and can be pushed forward into the hollow of the palpating hand in front of the abdomen.

(*g*) Absence of urinary and of gall-bladder symptoms.

He concluded his paper by describing the technique of the operation.

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*ON MODERN TREATMENT OF UTERINE CANCER.**

By Thomas More Madden, M.D., F.R.C.S. Ed.,
Obstetric Physician and Gynecologist, Mater Misericordiæ Hospital, Dublin.

In the gynecological wards of the Mater Misericordiæ Hospital, Dublin, which have been under the writer's charge for the last quarter of a century, a very distinct increase has been observed within the past six years in the frequency of cases of cancer of the uterus. In the present communication is submitted a *résumé* of my clinical experience of the curative and palliative measures now available in the treatment of that disease. Amongst others, the former of those thus referred to include: (*a*) Early amputation of the cancerous cervix; (*b*) hysterectomy by vaginal or abdominal routes; (*c*) electrolysis; (*d*) escharotics, actual and potential; (*e*) injection of absolute alcohol into substance of cancerous growth; (*f*) the employment of celandine, methylene blue, and some other remedies for which specifically curative effects have recently been claimed. Of all these methods of treatment, however, there is but one on which I place any very wide or general reliance in the treatment of uterine cancer. The disease in the vast majority of instances primarily manifests itself in the cicatricial tissues resulting from parturient lacerations of the cervix uteri. Therein it very frequently remains localized for a time, sufficiently long to enable its timely detection by proper recognition of topical evidence, and above all by that microscopic examination of the scrapings of the affected surface which should be invariably resorted to in all cervical lesions occurring in patients approaching to or beyond the climacteric period. If thus early recognized, incipient cancerous degeneration may in a large proportion of cases be effectually arrested, before any malignant invasion of the superior uterine zones has occurred, by its timely and complete removal and the free cauterization of the divided surface well above the area of cancerous infection.

The advantages of this practice are sufficiently shown by the facts that, first, in the large number of instances in which it has been resorted to the mortality of the operation was *nil;* secondly, that in two-thirds of those cases the patients remained free from any recurrence of cancerous disease in the uterus or elsewhere as long as they remained under his observation—namely, for periods varying from two to ten years after the operation. These results contrast favorably with any that can be claimed for hysterectomy under similar circumstances, and hence I believe that operation in such cases should be restricted to those less frequent instances in which cancer primarily attacks the fundus or body of the uterus, or in which it has recurred there after the removal of the cervix. Under such conditions the abdominal hysterectomy operation affords greater facilities than the now generally preferred vaginal procedure for that thorough exploration and complete extirpation of any accessible implicated lymphatic by which we may hope to

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* Abstract of a paper read before the British Medical Association, August, 1899.

secure immunity from eventual recurrence of the malignant disease.

Although the immediate mortality of hysterectomy for carcinoma as well as for other causes has, and more especially by the vaginal method, been now reduced to a very small percentage, the eventual or curative results of such operations are by no means as satisfactorily proven as would now seem to be generally held. If the disease be thus dealt with in its incipient stage, and when distinctly confined to the cervix, there is no reason in the present state of abdominal and pelvic surgery to doubt the curative results thus claimed. But could not those results equally well, and with still less risk, be attained in such cases by the removal of the cervix alone? On the other hand, if in the statistics which are apparently held to justify an indiscriminate resort to hysterectomy in cases of uterine cancer be included cases of long-standing malignant disease in which the upper portion of the uterus and its connections have been extensively implicated, the matter assumes a very different aspect. Bearing in mind the intimate and widespread lymphatic relations of the uterus, it is difficult to realize how under such circumstances a disease so prone to disseminate itself can, generally speaking, be so thoroughly removed from a network of adjoining lymphatic glands, and vessels apparently beyond reach of surgical interposition, as to warrant the confident assertions of eventually curative results that are made by some hysterectomists, of whose *bona fides* there is no question, but whose conclusions might probably be considerably modified by reexamination of their cases at a longer interval after operation. At the same time the writer fully recognizes the expediency of hysterectomy in those appropriate instances before referred to, viz., in the earlier stages of fundal uterine cancer as well as in some cases of cervical epithelioma in which the disease has recurred in the fundus or body of the uterus after removal of the cervix.

With such exceptions, however, having in view the common origin and general localization for a time of uterine cancer within the cervical zone and the advantages to be derived from the adoption of effective topical measures in such cases, I am convinced of the importance of the early extirpation of the incipient cervical disease. Moreover, as a preventive expedient even in cases where no evidence of malignancy is discoverable, the complete removal of all cicatricial cervical tissues resulting from traumatic injuries that might possibly otherwise eventually become the seat of cancerous disease is wise. These tissues may in such cases be more effectually dealt with by écrasure and thermocautery than by cervical trachelorrhaphy, especially in women beyond the climacteric period.

In the concluding part of the paper the uses of electrolysis, chloride of zinc, and local injections of absolute alcohol, as well as the employment of celandine, methylene blue, orthoform, and various other remedies now advocated for the mitigation of hemorrhage or discharge, or for relief of pain, in inoperable cases of uterine cancer, are discussed.

INTESTINAL ANTISEPTICS IN TYPHOID FEVER.

By M. M. Pearson, M.D.,
Bristol, Tenn.

There are no classes of remedies that have been brought so prominently before the profession within the last few years as germicides and antiseptics, both local and internal. It is to the latter and to the so-called intestinal antiseptics that this paper will be devoted. The vast number of the proposed agents so enthusiastically urged by members of the profession makes a strong argument that discredits their efficiency.

Since the knowledge of the bacillary origin of Asiatic cholera and allied diseases of the intestinal tract, and even before, on the assumption that these were supposed to be of bacillary origin, the bacteriologist in his laboratory and the clinician have continued in their extended and painstaking efforts until they have embraced every conceivable drug of real or supposed antiseptic properties. It is also to be observed, and with special reference to this subject, that the phenol group is at the base of most of them, and likewise is the most abused class in the entire materia medica list.

The chemist is unable to master this subject for the reason that the behavior of a given drug within the test-tube and its behavior after it reaches the intestinal tract may be different and is entirely conjectural; and after all the clinician is the great "leveler of truth." It has not infrequently been heralded that the ideal drug or combination of drugs has been discovered, but no sooner was the test of experience tried than each in its turn has taken its place upon the "doubt-

ful list," and beyond this we have been unable to go. We are apprised of the fact that the task is far more difficult than was at first dreamed of, and to-day the subject of intestinal antiseptics can at best be said to be in the experimental stage. In other words, the question of intestinal antiseptics "is the substance of things hoped for, the evidence of things not seen."

By making a review of this subject we will find our German *confrères* have instituted a practice based on the antiseptic principle, and which was known as the "specific treatment." It consisted in giving ten grains of calomel on the first day of a case of typhoid fever, eight grains on the second day, and so on for each succeeding day for a period of about one week. This treatment had many able advocates, and among them were Leibermeister and other notable German and American authorities. This treatment was regulated to conform with their knowledge of the pathology of this disease, and at the time was opposed by many and subsequently condemned, because it was not found to be scientific, and likewise did not afford the best results clinically. Having proven unworthy of the title of "specific," it was followed by what was known as the "German specific treatment." This well understood mode of treatment has not only had the approbation of the Germans, but has met with great favor within the United States, and is more generally employed to-day than any other line of treatment, particularly in the rural districts, where the doctor does his own dispensing, being both convenient and practical.

Statistics as furnished by certain institutions and individual members of the profession are unreliable, inasmuch as typhoid fever in every locality and in every epidemic is a law unto itself. Many cases as we well know do well with the worst of treatment, and bad with the best of treatment. The treatment of a few cases, or a few hundred cases, may mislead, as it did our lamented Pepper.

The "German specific treatment" consists in the administration of compound tincture of iodine combined with carbolic acid in the proportion of two to one, which combination is to be frequently administered. In the discussion of the present subject this treatment is selected because of its general and continued use, and because it fairly represents the principle embraced in this subject. It was on this idea that the late William Pepper, one of the most distinguished of American authors and practitioners, was led to adopt the use of nitrate of silver, which he advises in Pepper's System of Medicine, and which he so enthusiastically indorsed. He reports having treated one hundred consecutive cases without a death. At this time, or perhaps a little later, Henry used thymol and reported about the same results. But at present we know of no author advancing either of these drugs to the exclusion of others; and the authors themselves later disclaimed them as not fulfilling the promise set forth for them, and as not bearing the test of experience.

Woodbridge, of Ohio, with his fifteen-minute triturates and three-days' cure, makes a record surpassing anything yet in point of time and results. He claims for his method that it is antiseptic and eliminative, and as such abortive. We cannot admit the first proposition to be true, nor grant the latter.

William F. Waugh declares in favor of sulphocarbolate of zinc as the long looked for boon in intestinal antiseptics. Yet the great bulk of the profession have failed to find it such, and after the use of all these antiseptics the bacillary invaders remain as secure and firmly fixed in their favorite habitat, the meshes and substance of the glands of Peyer and the solitary glands, as ever.

At the present day there is not a teacher of practice in any of the reputable schools, or hospitals of like standing, or a reputable author, who vouches for the so-called antiseptic treatment in typhoid. The author of this paper has a report from about twenty teachers of practice in the leading medical colleges of the United States, who were recently asked the questions, first, What is the best treatment of typhoid fever? and, secondly, Is calomel useful and indispensable? Without exception the answer to the first question was the "Brand method," and to the second, No; except in one or two cases in which an occasional dose of calomel was permissible in the beginning, as a purge, but not as a routine treatment.

The papers read before the American Medical Association at the last two meetings disclosed the common unanimity of opinion, and no man of national reputation advocated any of the methods briefly outlined in the context of this paper, and only inadvertently referred to the so-called antiseptic treatment.

When we come to consider the question on its merits, it does not stand to reason, theory, or common sense, as a plan of practice. Should experience and practice yield positive results, then it would be that theory

could be surrendered to plausibility; but when neither establish the claims that carry any degree of conviction, then both should be relinquished.

By an intestinal antiseptic is meant an agent or drug that will arrest putrefaction and the suppurative process in the intestinal tract, the result of the presence and multiplication of organisms which are eliminated and destroyed. Foster's Practical Therapeutics says on this subject: "Certain drugs locally applied in proper strength are destructive of microorganisms of local infection, and at the same time safe to the patient. This applies to surgical antiseptics. But with infectious conditions within the body, the difficulty in the way of attainment is greater. It is little to be wondered at that the intestinal antiseptics and internal antiseptics of the present day are not much advanced beyond the period of theory, and in the opinion of members of the profession are hardly likely to advance much further."

Let us see why this is true. The same author, in speaking further on this subject, says: "It is necessary to say that the devitalizing agent in disinfection is a chemical action between two bodies, and it is essential that their molecules should be brought into contact with one another. The obstacle is in the difficulty of reaching the microorganisms with the drug without previous occurrence of chemical changes in it, as would render it almost or quite inert. Second, the great danger of doing serious injury to the patient by giving drugs in quantity sufficiently large to reach the organisms and destroy them."

Let us analyze the iodine and carbolic treatment of typhoid from a chemical standpoint, and as an antiseptic, through which medium it must act. There is no proof that it acts through the blood, and it is not so claimed by the advocates of this practice. Pursuing the advised mode of administration, which is two drops of the solution every two hours, and we will suppose this is cumulative and remains in the intestinal tract, and that none of it is absorbed, the patient will have in all thirty-six drops. As to the relative value of these drugs as antiseptics, Sternberg says that iodine, in a two per-cent solution, will destroy microorganisms of pus in two hours; and further, that it does not rank as an energetic antiseptic. Of carbolic acid Foster's Therapeutics says that it does not rank as an antiseptic as compared with the metallic salts, and for the disinfection of excreta a five-per-cent solution, equal in volume to the quantity to be disinfected, should stand four hours; and further, that it has no influence whatever upon either general or internal antiseptics.

Beginning at the mouth with the thirty-six drops of the mixture for the entire twenty-four hours, and which is destined to reach the small intestines, let us see what we encounter. Approximating the secretion of saliva for the twenty-four hours to be 1280 grammes, gastric juice 6000 grammes, pancreatic juice 800 grammes, bile 1000 grammes, and water in food and drink 2000 grammes, we get in all a total of 11,080 grammes, or nearly three gallons of liquid. True, the secretions are diminished, while the water taken is markedly increased, so that, to be safe, we will say that the total is two gallons. But this is not all. There are the various constituents of the food, the various actions and reactions, chemical and physiological, met with in the stomach, mouth, and intestines, together with various bacteria, some of which are pathogenic, so that the object sought cannot be hoped for, much less attained, owing to the great dilution of the antiseptic.

But this is not all of the carbolic acid and iodine treatment, nor all for the vast phenol group. If iodine and carbolic acid reach the intestines as such, and especially in their high dilutions, would they add to the development or the destruction of the bacilli? If salol, which is favored by Anders in his recent and very excellent work, is converted into salicylic acid and carbolic acid in the small intestines, is it a curative agent or a promoter of the growth and multiplication of organisms, upon which the virulence of the disease depends, by furnishing a pabulum favorable to their growth and development? To say the least, the experiment appears to be dangerous, and for the following reasons:

Frankel, a recognized authority on bacteriology, says on the subject of typhoid culture, now being considered for purposes more especially diagnostic, that "Chantemesse and Widal, for instance, have stated that typhoid bacilli can flourish on two per cent of carbolic acid gelatin, while the majority of other bacilli do not flourish." The same author also speaks of the culture medium of Holtz, which varies from the one above in some minor essentials, yet contains iodine, however, in a weaker solution. Ball, an American author, on the same subject in his second edition of Essentials of Bacteriology, says "that gelatin, which has added to it ten per

cent of carbolic acid, will allow the typhoid bacilli to develop, other similar bacilli being destroyed." Reeve, in his Medical Microscopy, quotes from the observation of Chantemesse and Widal in reference to their culture medium, and to Widal is due the discovery of the reaction test in typhoid.

Hence it would appear that carbolic acid, instead of destroying the organisms in question, would not prevent their growth, although the contents of the intestines might approach the strength of a two-per-cent solution, at which strength the typhoid germ has been known to survive and develop.

But by some it may be held that the good effect of this treatment is due to the iodine. In 1895 the subject of typhoid culture was taken up by Elsner, and he considered the potato gelatin of Holtz, referred to by Frankel, as the best medium up to that time. The appearance of the typhoid bacilli was not in his opinion sufficiently distinctive, especially when the carbolic acid was added, and after a long search he found iodide of potassium, in the strength of one per cent, an ideal substitute.

Let us now view this subject from another standpoint, and with special reference to true etiology and pathology. Supposing that we could reach the diseased glands within the intestinal tract, to what extent would we be able to influence the course and duration of the disease? It is more than probable that the bacilli of typhoid gain entrance to the system through the glands of the small intestines, and that here is the prime point of infection and dissemination, and we grant this; yet it does not prove the absolute efficiency of local treatment or that typhoid can be or is aborted. More than likely there are other agencies more deadly than the typhoid bacilli, *per se*, and in no wise should our sole aim be directed to the removal and destruction of these germs, which, no doubt, if it could be accomplished, would be important. Infectious diseases, of which typhoid is a typical entity, mean more than a localized trouble. The bacilli some seem to suppose are merely lodged upon the mucous membrane of these glands, but even before the febrile stage begins, or, in other words, during the period of incubation, they have passed beneath the mucous membrane into the glandular substance and may be found in the spleen, mesentery glands, gall-bladder, and also in the blood. The theory that the live organisms infect the glands and the ptomaines circulate through the system, thus producing the various morbid phenomena, is not well taken, since the living organisms have been found in almost every part of the body, and occasionally in the blood. We are forced to the conclusion that typhoid fever is as much a systemic, although self-limited, disease as syphilis, and treatment directed purely to the local lesion, and based on that principle, is as much a folly as the treatment of a chancre for the permanent cure of syphilis. Likewise, the rule holds good with special reference to the mere local treatment of diphtheria, and it is also a fact that none of the infectious diseases are influenced by a mere local treatment. The local and so-called antiseptic treatment of diphtheria has been abandoned, and in its stead serum-therapy has been adopted. The opportunity for local treatment in this disease is excellent as compared to typhoid fever.

H. A. West, professor of theory and practice in the University of Texas, in a paper before the American Medical Association, lays down the following propositions on typhoid: First, it is a specific infectious disease, and, with the exception of malaria, there is no disease of this class that can be jugulated by the action of drugs; secondly, the long period of incubation and the prolonged insidious onset characteristic of this disease give ample time for the infectious organisms to pass beyond the intestines into the other tissues, where they cannot be reached by way of the gastrointestinal canal; thirdly, there is no evidence to prove the potency of any drug for the destruction of the pathogenic agent in the intestines, when given in doses which would not be toxic to the infected person; fourthly, there is no drug known to me which will destroy the typhoid bacilli through the circulation, and that will destroy the bacilli after they have reached the glandular organs; fifthly, my experience with the formulas which have been extensively used and advised as specifics has not been such as to substantiate the claims made for them by their authors.

Osler says, on the subject of intestinal antiseptics: "Very laudable endeavors have been made in many quarters to introduce a method of treatment directed towards the destruction of the bacilli, but so far without success. Good results have been claimed for the carbolic acid and iodine treatment. I can testify to their inefficiency."

Tyson says, on the same subject, in his Practice, page 46, that "the antiseptic treatment has not a truly rational basis, while the

extravagant claims of its advocates discredit their results."

Since it appears that the bacilli do not appear in the stools often until the end of the second week, and in no case before the seventh day, the antiseptic treatment pure and simple is a failure. All are agreed that the earlier the treatment is begun the better the results, and that the mortality is doubled after beginning treatment after the fifth day. To check bacterial activity as aimed at by the advocates of this plan would be a disastrous interference with the normal process in the bowels. No one has been foolish enough to claim that the so-called intestinal antiseptics can kill the pathogenic and spare the useful organisms.

This paper is written with no other object than to correct a wide-spread and generally misunderstood principle which often governs in the treatment of typhoid fever. It should be kept in mind that it is in its broadest sense a systemic affection, or "typho-toxin," and not a local disease.

FOUR FRACTURES TREATED BY OPERATION AND WIRING BECAUSE OF FAILURE TO REDUCE BY CONSERVATIVE METHODS.

By W. T. Sharpless, M.D.,
West Chester, Pa.

The following cases, which were met with in the wards of the Chester Hospital, at West Chester, Pa., seem to be of sufficient interest to be reported:

Case I.—A. T., aged twenty-eight, butcher, admitted February 20, 1898. Dr. Elwood Patrick and myself found this patient in the ward when we came on duty April 1, having been in the hospital forty days. On February 18 he had jumped out of his wagon to stop the horse, and struck unexpectedly on the frozen ground. He heard a crack, saw blood coming out of his leg, and was unable to move. Two days later he was brought to the hospital and was found to have a compound comminuted fracture of both bones of the leg at about the middle. The wound was already seriously infected. He was etherized the day after admission, the wound cleaned out, the fragments brought into better apposition, and a wet antiseptic dressing applied, with the limb in a fracture box. It was in this position when he came under our care. He had no fever, his general condition was good, and the wound drained freely. There was no union.

Dr. Edward Martin being at the hospital at this time, he was asked to see the case and advised the following treatment, which was carried out April 8, 1898: Patient was etherized, and as there was much dead bone and fragmentary and badly shaped ends, the ends of the bones were sawed off sufficiently to get good, square apposition, and the tibia wired with silver wire. The fibula was not wired as the end seemed to be held in good position by the muscles, in which it was embedded. Through-and-through drainage was used, and a plaster cast was applied at the knee and one at the ankle, with firm splints between them, so arranged as to admit of free drainage and dressing. Three days after the operation the foot had swollen so much that the casts had to be removed, and the leg was placed in a fracture-box and dressed thrice daily. For some days there was a foul purulent discharge and some fever. These lessened, however, and finally ceased, and on June 9 a plaster cast was applied, trapped, so as to admit of dressing a small wound on the anterior surface of tibia. The rest of the wound had closed.

The case passed out of our care July 1. The records of the hospital show that the cast was removed July 13, when there was firm union, but a sinus leading down to dead bone. This was curetted July 18 and kept in a fracture-box until August 22, when the cast was reapplied and he was allowed to go on crutches. By September 20 he could walk with a cane. On November 9 the bone was again curetted, and some necrosed material removed. On November 25 sinuses had closed. He was discharged February 20 of this year, exactly a year from date of admission, with a small superficial wound on the tibia. He has been at work since. We hear he is driving an ambulance for a Philadelphia hospital.

Case II.—G. E., aged forty-five, gas-fitter, admitted March 20, 1899. While at his work he fell from a step-ladder a distance of three feet, striking his knee against the floor. The knee being flexed, the weight was received upon the head of the tibia. He sustained a fracture of the femur immediately above the condyles, with some comminution of the fragments, which permitted of great mobility in all directions. The skin was not broken. Buck's extension apparatus with sand-bags was used. Great swelling of the thigh and knee-joint occurred, with much discoloration

—probably from hemorrhage from a large vessel. At first but small weight was used. This was subsequently increased in an effort to overcome the shortening, until 23 pounds was used. Even with this weight there was a shortening of about one and a half inches. The swelling disappeared in about a month. The leg was examined from time to time, but no union occurred.

On May 26, two months after the injury, there being no union, Dr. Edward Martin operated, making an incision on the outer side of the thigh above the knee seven inches in length. The lower fragment was tilted backward, and some muscle and fibrous tissue were between the fragments. There had been no attempt at repair. It was not found possible by flexion or any other manipulation to completely reduce the fracture until about an inch had been sawed from the lower end of the upper fragment. The ends were then brought into good position and wired. A cast was applied, which was removed June 25, 1899. The wound had healed perfectly. There was still some motion; a new cast was applied and the patient was allowed to get up on crutches.

CASE III.—J. S., aged forty-one, farmer, admitted May 22, 1899. The day before admission, while leading a colt to pasture, he was thrown down, the left knee being twisted and thrown violently against a stump, producing a fracture of the left femur immediately above the knee—almost identical in character and position with Case 2. The fracture was oblique, and the lower end of the upper fragment had perforated the muscles at the side of the thigh and could be felt immediately under the skin. Before admission an attempt was made to reduce the fracture, which was unsuccessful, it being found impossible to get the point of the upper fragment out of the mass of muscles in which it was embedded. A similar unsuccessful attempt was made after admission to the hospital.

The case was operated upon by Dr. Martin one week after admission. It was found that infection of the wound had occurred, probably through the skin, and a considerable amount of pus was present. An incision was made on the outer side of the thigh and one on the inside. It was with a good deal of difficulty that reduction was accomplished. Some loose fragments were removed and the ends of the bones wired—the wires being passed through the ends of the bones and also wrapped around them. Gauze drainage was used, which has been renewed daily, and the wound irrigated with a bichloride solution. Casts were applied above and below the wound with strong splints between them. There has been a free purulent discharge in this case and regular hectic fever, and considerable failure in his general health. Within the past week, however, the fever has lessened, and as there seems to be some union we will persevere in the effort to save his leg.

CASE IV.—J. B., aged twenty-eight, laborer, admitted June 8, 1899. A bank of earth and rock fell on him while working in a quarry, catching his legs especially, and causing a compound comminuted fracture of the left tibia and a simple fracture of the right fibula, both near the middle of the bones. Two and a half hours after the injury he was brought to the hospital and etherized. It was found that a small piece of bone nearly one inch long on its largest side was completely separated, also a few smaller chips, thus taking a piece completely out of the tibia, and leaving two oblique ends which overlapped about one inch. The fibula not being broken, shortening was prevented. The incision was enlarged along the inner side of the leg where the fragments protruded, and a counter-opening was made about four inches in length just external to the crest of the tibia, and the exposed bones drilled and wired. As it was found that this did not hold them firmly the wire was wrapped around the fragments. A drainage-tube was put through the leg and the whole placed in a fracture-box. This wound has suppurated but very little, and the temperature has remained nearly normal. At this writing the case bids fair to do well.

SPONTANEOUS ESCAPE THROUGH THE UMBILICUS OF A CATHETER INTRODUCED INTO THE UTERUS.

BY P. N. ECKMAN, M.D.,
Philadelphia.

On March 1 of this year I received a very urgent call to see Mrs. H., an old patient of mine, whom the messenger stated was dying. I was out at the time, and the call was referred to my friend and neighbor, Dr. T. O. Nock, who saw her and can confirm this rather remarkable story. The doctor reported to me when I saw him in the evening that the patient was seriously ill and advised me to see her early the next morning, which I did and found the following state of affairs:

The patient is twenty-five years old,

married, rather stout, weighing 200 pounds; she has had two children, the youngest twelve months, and one miscarriage. I found her lying on a lounge down-stairs partially dressed. She was very much thinner than when I had last seen her, and there was an anxious expression about her face that denoted extreme suffering. I obtained the following history, which was rather reluctantly given:

On February 13, having missed her period twenty days, she consulted a physician, who to help her out of her supposed trouble introduced a catheter into the cavity of her uterus and told her to return the following day to have it removed. This she was unable to do on account of the blizzard which occurred on that date. She suffered some pain and passed a few drops of blood by the vagina, but did not return to the doctor for three days. When she did return the doctor upon examination was unable to find the catheter and told her she had lost it, but that she was all right and need not worry. She went home much comforted, but suffered so much pain that she sent for her abortionist, and was treated by him for about two weeks for diarrheal pain and irritable bladder, with vomiting and great prostration. These symptoms the abortionist summed up to mean typhoid fever, and had given her up to die at the time I was sent for, which was fifteen days after the introduction of the catheter.

Examination showed a fiery red tongue, a weak, rapid, thready pulse, great abdominal distention and tenderness. On palpation of the abdomen a distinct mass, which was more tender than the rest of the abdomen, was felt a little below and to the right of the umbilicus, about the size of a three-months pregnancy. On account of fat and extreme tenderness it was impossible to make a thorough bimanual vaginal examination, so that all I could make out was that this mass seemed to be continuous with the uterus, which was so drawn up and firmly fixed that it was almost impossible to reach the cervix. What this mass was I could not determine, but as it might be any one of a number of things which demanded surgical interference I advised her removal to a hospital with this end in view. This was most emphatically declined by the patient, as also was the proposition to have a surgeon see her, and I agreed to treat her expectantly, but offered very little encouragement for her recovery. I consented to the plan the more readily because the case seemed a very unpromising one for operation.

To my surprise she began to improve after a few days of symptomatic and tonic treatment, so that her diarrhea and vesical tenesmus passed off, and at the end of two weeks it was impossible to feel the mass by external palpation, while by the vagina the uterus had descended to its normal position, and the mass, which still seemed a part of it, was smaller and more posterior in position. She was at this time able to take a little food, and opiates were suspended. I did not see her again until April 1, one month after I was first called. At this time she sent for me on account of an inflamed and tender navel. This she was poulticing and said it was causing her much suffering. It was a most curious looking thing, a glistening hard white nodule about the size of a silver quarter as the center, around which radiated four or five other oblong nodules of a similar character. I ordered an evaporating lotion, and considered it the strangest thing I had ever encountered. Five days later the central nodule, which continued to be very painful, began to take on a bluish tint and ruptured in another day or two, discharging a few drops of thin, offensive pus. Attempts to probe the opening were futile, the probe only entering about a quarter of an inch from the surface, where it was arrested by a resisting substance which felt not unlike cartilage. I left directions for antiseptic washings and a powder, and did not see the case again until April 11, when the husband came to see me in the evening and asked if I would stop the next day, as there was something black sticking out of his wife's navel which he said looked like a licorice lozenge. I was interested at once and proposed to go that night, which I did, and was able, with little difficulty while the patient sat up in her chair, to extract a full-length No. 9 linen catheter with the enamel dissolved off, together with a small quantity of foul-smelling pus.

The subsequent history is soon told. The sinus healed in a few days and the patient began to take on flesh, so that now she is up to her usual weight and has no abdominal symptoms.

I have never been able to entirely satisfy myself as to the route the catheter took, but I am of the opinion that the mass I felt was the uterus itself stretched by the pressure of the curled-up instrument inside, and that this stretching brought the fundus in contact with the abdominal parietes, so that when the uterine wall perforated, which it did about the time of my second examination, it

was surrounded by an inflammatory barrier which protected the peritoneal cavity. The perforation of the uterus allowed it to sink down again to its normal or nearly normal position, relieved the tension and the pain, and caused the disappearance of the mass from above.

The interesting features of the case are the total absence of any uterine discharge, the fact that she came down-stairs every day in spite of my injunctions to the contrary, as well, of course, as the fact that the woman is alive at all.

Of the lessons which this case teaches perhaps the two most important to the abortionist are: don't leave a catheter in the uterus without tying a string to it, and don't diagnose typhoid fever until the catheter has been found. The accident is not one likely to occur to honest men.

I do not claim any credit for the happy result, since I never considered that I knew what ailed my patient until the eye of the catheter presented in the wound.

624 TWENTY-SECOND STREET.

ON THE CHOICE OF OPERATION FOR STONE.

BY JOHN H. BRINTON, M.D.,
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LITHOLAPAXY.

Given a stone in the male bladder, how shall the man soonest safely get rid of it? In past times the answer would have been, "If the stone be small or soft, or both, crush it; if hard or large, or both, remove it through the perineum by the single, median, or bilateral operation."

At the present time, and since the introduction of litholapaxy by Bigelow, and the resuscitation and improvement of the suprapubic method, new elements both of safety and danger to the patient have been developed and recognized, which demand thoughtful consideration. A sound conclusion as to procedure cannot be jumped at; it can only be reached by carefully searching for, comparing, and weighing the merits and demerits of each method of operation. Some of the disadvantages, or possible sources of danger, have not, I think, been as yet dwelt upon, at all events sufficiently, and will therefore bear a closer investigation.

The factors which should in great part influence in the choice of procedure for the removal of a bladder stone would seem to be: (1) The character of the stone, whether it be hard or soft, small or large; (2) its duration, or length of domicile in the bladder; (3) the probable condition of the bladder, the ureters, and kidneys, the degree and character of the involvement of these organs, and the disturbance of their functions; (4) the age of the patient; (5) the gravity of the symptoms, and the amount of general constitutional disturbance; (6) the urgency of operation.

A just appreciation of the above conditions will, I think, go far to indicate the proper course and special procedure to be adopted in each individual case. In a general way it may be stated that the best solution of the vesical calculus problem will be the removal of the stone without incision of the bladder. To crush a stone and have it voided by the urethra spontaneously, or even instrumentally, would be an ideal operation, provided, in the first place, that no injury from bruising or overdistention of the bladder walls occur, nor serious and permanent ill effects be produced on the urethra and prostate gland. In the second place, the procedure should be thorough—that is, the entire amount of broken stone should come away, so that no fragments may remain to cause or keep up irritation, or to serve as the starting-point of fresh or larger concretions. In the old and now almost obsolete method of lithotripsy, which I have so often seen practiced by experienced hands, the calculus was first finely crushed—in fact pulverized—with the duck-bill crusher, and then spontaneously voided in the urine stream—"piddled away," to use the language of the day. This, however, probably only occurred where the stone was soft and relatively small, and where the crushing had been very thoroughly accomplished. Perhaps in most cases some larger or irregularly shaped fragments remained in the bladder, acting as sources of irritation or as the nuclei of future calculi. Although successful in exceptional instances, the operation was in the main not altogether to be relied upon; it was too uncertain and imperfect. Thus it has happened that with the advent of litholapaxy the older lithotrity or lithotripsy ceased in great part to be practiced.

The idea of litholapaxy, the crushing and evacuation of the stone at a single sitting, took firm hold of the professional mind, and this operation has been largely resorted to. Much has been expected from it; its early

successes have been widely spread, perhaps magnified, and its failures minimized, or imperfectly reported and dwelt upon. To such an extent indeed has this been the case, that by the laity and general profession this method has been looked upon as almost devoid of dangers, and therefore of universal application. Nevertheless, among those who have practiced it most a feeling of uncertainty has gradually grown up. There has been no doubt that this method of Dr. Bigelow has been a great advance upon the older lithotrity, and that in proper cases it should always be resorted to; yet not a few deaths have followed its use, and in other instances complete evacuation of fragments has not been obtained, and repeated operations have been necessitated. These facts have since strongly impressed themselves upon the mind of the writer, who in consequence made a series of experiments to determine if possible the bearing and effect of each step of the procedure upon the final result; in fact, to analyze the method, and see where the fault, if any, lay, and how it could best be avoided.

The operation of litholapaxy, as is well known, consists of two parts or steps. The first is the *crushing* of the stone into fragments sufficiently small to pass through cannulæ or tubes introduced through the urethra into the bladder. These, like catheters and bougies, are of various sizes, the ends being bent into short curves, or else straight. The size employed is the largest the urethra will admit, the meatus having first been incised, if necessary.

The second step is the evacuation of the crushed fragments. This is accomplished by means of a rubber bulb filled with water, which is fitted to the mouth of the evacuating tube already inserted through the urethra into the bladder. The jet of water into the bladder, by sharp pressure of the bulb, produces upward agitation of the fragments of stone, and on each dilatation of the bulb — its diastole as it were — a suction effect results by which the fragments are drawn into a receiver attached to the rubber bulb, and so guarded that their reentry into the bladder cannot occur. If the calculus has been broken into fragments of proper size, these can be thoroughly evacuated by prolonged and careful continuance of these sucking or pumping efforts of the bulb. From a purely mechanical point of view this procedure seems almost absolutely perfect. But when applied to a vital organ, as the bladder, a delicate structure, and endowed with exquisite sensibility, it has often been noticed that its effects seemed out of all proportion to the amount of force apparently employed. Death has not infrequently resulted, and varying degrees of shock referred to idiosyncrasies, or simply not to be explained.

In the researches above referred to I sought to study the character and degree of force exerted by the rubber evacuator when sharply compressed. My object was to learn whether any real violence, or possible traumatism, might be unwittingly produced. The rubber bulbs employed were of varying degrees of purity; those of greater purity were softer and more readily compressible, and consequently a greater amount of water was thrown forward at each forced contraction of the bulb under hand pressure, averaging from two to two and a half ounces, or even more. With a bulb of harder or more adulterated rubber (for the india-rubber of the market is composed largely of whiting, with a small percentage of Para rubber or gum) the fluid ejected was about one or one and a half ounces.

The effect of throwing a small quantity of water into a bladder already filled, or nearly so, was most marked. Even with the most gentle digital pressure on the bulb the bladder became tightly distended, pouched around the openings of the ureters; and if the pressure was continued or increased, it was exceedingly apt to burst.

In a recent demonstration before the Academy of Surgery of Philadelphia the bladder from the pig under a very moderate bulb pressure ruptured, evacuating its contents. Clinically I have observed that an anesthetized patient will often groan when the distention, or rather overdistention, of the bladder is produced. This is a symptom which I dread, as indicative of overdistention, and prophetic of shock and disastrous consequences.

The result of these cadaveric researches has convinced me that an excessive distention of the bladder, amounting to overdistention, may easily be unwittingly brought about even by the hands of a conscientious and careful surgeon. I believe, too, that to this cause, more than to any other, must be attributed the occurrence of a degree of shock, which sometimes is followed by fatal results, and which we have perhaps attributed to idiosyncrasies, alcoholism, or depraved conditions of the system.

It would indeed seem that safety in litholapaxy can only be insured by the surgeon constantly remembering the peril to the patient resulting from sudden surgical and mechanical overdistention of the bladder. Bearing this in mind, it would be well to adopt some such rule as this: Never to perform any of the steps and manipulations of litholapaxy, either those of crushing or of evacuation, and especially the latter, in a bladder which contains more fluid than three-fourths of its measured capacity. Thus, if under ether the bladder capacity be found to be ten ounces, after emptying it by a catheter inject into it 7 to 7½ ounces. This will leave unoccupied a vesical space which will permit increased extension to the extent of the entire capacity, represented by about two and a half ounces of fluid, that being about the amount of the fluid forced inward by moderate digital pressure on the bulb. It is to be remarked that during all this manipulation there is some backward leakage through the urethra from the bladder. This is gradual, and while it lessens the general vesical contents, preserves as it were the normal mean between injection and ejection, but is not sufficient to relieve a sudden overdistention or to avert its evil results.

Holding these views, I believe that before undertaking the operation of litholapaxy, it is important, indeed essential to the safety of the patient, accurately to determine the capacity of his bladder. This should be done three or four days before the proposed operation by first drawing off all urine with a catheter, and then distending the bladder to its full capacity by the flow from a fountain syringe under ordinary hydraulic pressure. The injected fluid should be mild and antiseptic — a weak solution of borax or boric acid. This injection should be repeated when the patient is first anesthetized at the time of operation, when a large vesical capacity will probably be obtained. The capacity of the bladder in ordinary conditions, and when dilated to its fullest extent under an anesthetic, is thus ascertained, and should be constantly borne in mind in the after procedure.

The first step of the operation is that of properly breaking or crushing the stone. It is not necessary, as in the old operation of lithotripsy or lithotrity, to pulverize the stone; it is sufficient to break it into fragments small enough to pass through the evacuating tube, under the suction efforts, which act whether the fragment be regular or irregular in shape.

In sounding for stone it is well to examine the bladder systematically, the amount of water being about half of its previously determined capacity. The same maneuver can be practiced with the crushing instrument as with the sound. The formula of examination of the late illustrious surgeon, Joseph Pancoast, I have found the most convenient and certain. According to his method the left side of the bladder is first examined with the point of the instrument directed upward, its convexity resting lightly on the posterior vesical wall. The handle of the instrument should then be depressed between the legs of the patient, and turned to the right a full circle, so that the beak shall pass lightly over the mucous membrane, behind the urethral opening, and therefore behind any projecting bar caused by prostatic enlargement, should such exist. Not infrequently calculi of small size may be found here, whose existence has previously been scarcely suspected. This is apt to occur in the bladders of old men when posterior enlargement of the prostate has taken place, with phosphatic or decomposing urine. The instrument should then be carried backward, point upward, on the right side of the bladder, to examine the right side. It may then be withdrawn, point upward, in a median line, sweeping the upper wall of the bladder by successive semicircular movements.

The mucous surface of the bladder may thus be gone over in its entirety, and a stone if present will probably be detected. If not found, probably none exists. In any event the operator will have the comfortable feeling that his examination has been made systematically and with a degree of surgical precision. In instances where the results of this examination are negative, or where the calculus previously recognized cannot be again detected or grasped, it is well to reexamine by first decreasing and then increasing the amount of fluid in the bladder. It is well also to remember that when the fluid contents are largely increased the stone may at times escape observation. It is, as it were, drowned by the amount of fluid, and its presence may be undiscovered from the very extent of mucous surface to be investigated with the sound. So also when there is too little water in the bladder, a calculus, especially if small, may be covered up by mucous folds, or hidden behind a prostatic bar.

It is not uncommon to see vertical up and down movements of the sound made by some surgeons in sounding a bladder for stone.

This is a sort of "prodding" hurtful to the bladder walls. Its only warranty is in some cases to estimate the size of a stone already located. It surely is better in dealing with the lining of a tender bladder to avoid all disturbing or rough manipulation. When the stone has been felt, it should be caught in the crushing instrument as quickly as possible. This may be done most easily by letting the convexity of the crusher settle or rest lightly on the mucous membrane of the base of the bladder by the side of the stone; then on separating the blades, and tapping gently the handle of the instrument while the blades are turned towards the stone, the latter will fall into the grasp of the crusher. The blades with the stone are then slightly raised from the bladder wall and the screw turned until the stone is broken. This process can then be repeated on the fragments. One objection to the old form of lithotrites, even when fenestrated, was their liability to nip and cut or tear the mucous folds, and even to become impacted. When not fenestrated they were very apt to become impacted by fragments, so that their withdrawal was difficult and dangerous. The writer has known death to result from this cause in two instances. In one the urethra was torn off at the bulbo-membranous region, and in the other death followed from postoperative sloughing of the urethra. The modern crusher of Bigelow, with its beaked male blade, and those of Thompson, Keyes, and Forbes, seem to be free from all mechanical objections and are sufficiently powerful to crush any stone which it may be desirable to attack, and in all of these the blades are so arranged as completely to obviate all danger of impaction and hindrance in withdrawal.

In using the evacuating bulb, so as to suck out the fragments of calculus into the attached receiver, it is desirable that the pressure of the bulb should be made quickly and sharply, and be uniform. The water in the bladder should not be allowed to escape by the side of the cannula to such an extent as to hinder the agitation of the fragments necessary to their passage into the opening at the end of the tube. This suction can be best obtained when the bladder is filled to one-half or two-thirds of its capacity, and the operator should see that this relative degree of fulness be preserved; otherwise it may easily happen, during the continuance of a prolonged operation, that the vesical contents may be unduly lessened by constant urethral dribbling without attracting the attention of the operator. The surgical manipulations may be thus so protracted as to lead to inefficient or perhaps unsatisfactory results.

The great desideratum in litholapaxy is the removal of the stone to the last fragment. Nothing should be left to serve as the nucleus of a fresh calculus. Repeated trials, with a well filled and with a largely emptied cadaveric bladder, have convinced me that the last fragments are with difficulty gotten away, if the viscus be nearly emptied, and that the best chance for their withdrawal is when the bladder is distended to one-half or two-thirds of its fluid capacity, as above stated. As to the especial evacuator, that is simply a matter of personal preference. The Bigelow instrument in its later varieties, that of Dr. Otis, or one of the modified Thompson instruments, will answer equally well. The essential matter in the employment of each is that the operator should be perfectly familiar with its use, and be able to gauge accurately the amount of water ejected and withdrawn at each forced systole and diastole of the bulb. Some little care is necessary in filling the apparatus with water to exclude the air as nearly as possible. This can be best done by immersing the whole apparatus sideways in a tin box, about five inches deep, filled with the antiseptic fluid preferred.

The litholapaxy of the books is usually regarded as a procedure of little gravity, and one which the general surgeon can readily and safely do. This I do not think is quite the case. It really is a most delicate operation, requiring for its performance a high degree of skill and frequent practice. I think, moreover, that the dangers which may result from sudden and violent overdistention have been largely overlooked, or if recognized have not been fully estimated.

The *advantages* of litholapaxy when carefully used in appropriate cases, when the bladder walls are fairly healthy, are:

1. The evacuation of the stone at a single sitting.

2. The completion of the operation to the last fragment.

3. The absence of traumatism and violence when skilfully practiced.

4. The rapid convalescence of the patient, and his ability to resume his ordinary avocations in four or five days.

The *disadvantages* may be appreciated by remembering that:

1. The operation is one of several stages or steps dependent on each other, a perfect

performance of *all* being essential to ultimate success.

2. The risk from sudden excessive distention of the bladder, with the attendant possibilities of severe shock and perhaps of death.

3. The difficulty of removing all stone fragments, and the doubt as to its accomplishment. The outcome of the operation must always be for some time uncertain, with the contingency of renewed symptoms and further surgical interference.

4. The difficulty, amounting almost to impossibility, of detecting, grasping, and crushing small calculi hidden behind a backward projecting prostatic bar, or pouched in any mucous crypt.

5. Ignorance of the exact condition of the posterior prostate in old men, and of growths invading the bladder walls, despite the aid of the cystoscope and of the *x*-rays.

(To be continued.)

ON THE METHOD OF OPERATING FOR UMBILICAL HERNIA, WHETHER FOR RADICAL CURE OR WHEN STRANGULATION HAS OCCURRED.

MARSH (*British Medical Journal*, June 17, 1899), after describing the method of radical cure for umbilical hernia in common use, expresses his conviction that this proceeding may be altered in two particulars, with the result that it occupies less time, is more easy, and, as experience shows, safer for the patient.

The first point concerns the treatment of the sac; the second the management of the adherent omentum. As to the sac; as a first step (originally suggested by Mr. Treves) this is stripped entirely of all the surrounding tissues and completely isolated down to the opening through which it leaves the abdomen —that is, to the level of the linea alba.

The isolation of the sac is thus effected. A curved incision starting from the middle line above is carried over the right side of the swelling to the middle line below, and a similar incision is made on the left side, the two together forming an elliptical wound. These two incisions are so planned that they include the skin which covers all the front of the swelling, only enough being left to allow of the closure of the wound, without tension, in the middle line, when the hernia shall have been reduced and the sac removed. Next, the whole thickness of the subcutaneous fat is separated on either side from the outer surface of the sac, including its neck. This is easily carried out by a sweep of the finger and a few touches of the knife.

The operator now has the hernial sac and its contents clearly defined and under control. The sac is opened by an incision in the middle line long enough to afford free access to its interior. The omentum—any part of which not in the neighborhood of the neck of the sac may be freely divided, provided it has been first tied or securely clamped above and below—is unfolded and the intestine exposed. This, when such adhesions as tether it within the sac have been divided, is returned. In cases in which extensive and firm adhesions have formed between the intestine and the omentum of the sac, it is safer and quicker to cut through these structures at a little distance from the gut, so that portions are left adherent to it, than to persist in dissecting them off. The intestine having been returned into the abdominal cavity, the omentum is taken in hand.

In dealing with this structure, the usual method is to detach it at what may be termed its periphery from the sac wherever it is adherent. This, if the hernia is large and the adhesions are extensive, is a tedious proceeding which occupies considerable time. The following is a more expeditious method: The operator makes his way to the omentum where its neck emerges from the abdomen. This neck or stem he defines and isolates so that he can pass his finger completely around it. If it is adherent to the ring the adhesions must be separated. The stem is now tied in strands in the usual way, divided beyond the ligatures, and returned into the abdomen. There will now remain the sac, containing, perhaps, a large mass of more or less adherent omentum. The sac is cut away by dividing its neck at the level of the ring. Its edges are brought together with sutures, and the peritoneal cavity is thus closed. The ring itself is next obliterated by strong buried sutures, and the external wound is closed.

Marsh states that during the last three years he has performed the operation he has endeavored to describe nine times—four times for radical cure, and five times for the relief of strangulation. All the patients recovered. Two patients, in whom strangulation had existed for three and four days respectively, were in a grave condition for the first twenty four hours. The remainder bore the operation well, and gave no anxiety from the first.

The Therapeutic Gazette

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Leading Articles.

THE TREATMENT OF CHRONIC DIARRHEA.

The condition of chronic diarrhea is one which is frequently met with at the present time, although it is not so common as it was some years since, when the survivors of the civil war were more numerous. Even to-day patients present themselves to the physician with the statement that they have suffered from this condition ever since the days of their army life, and often it is surprising that their general nutrition is so little impaired. On the other hand, we meet with patients who have fewer or less copious stools, who nevertheless lose flesh with great rapidity and become much emaciated. In such cases the underlying condition causing the affection is probably situated high up in the bowel, where it prevents the proper digestion and absorption of food, or where by causing too active peristalsis it causes the food to be hurried down to the lower bowel before absorption can occur. In the cases where great emaciation does not take place the lesions are situated, it may be, in the lower bowel, and therefore do not deprive the patient of food. Nevertheless, it must not be forgotten that in some instances lesions situated in the lower bowel reflexly cause excessive peristalsis and consequently diarrhea, and of these lesions fissure of the anus is perhaps the most common. In rare instances reflex diarrhea arises from irritation produced by disease or disorder of other pelvic organs, and particularly is this true in women.

Cases of the character just referred to are often very puzzling when we attempt to discover their cause, and often go from one physician to another in the endeavor to find the remedy for their ailment.

Another class of cases is that in which the diarrhea depends upon actual catarrhal or ulcerative changes in the intestinal walls. In very few instances is this ulceration in the small bowel, except, perhaps, in cases of convalescence from typhoid fever when diarrhea may be persistent. Even in such cases, however, the lesions may be in the colon rather than in the ileum.

Finally, we find instances in which deficient digestive activity permits changes to take place in the food, and diarrhea results—an effort on the part of nature to get rid of useless and offensive materials.

As a result of this line of thought it is evident that before we attempt to treat a case of chronic diarrhea, we must study its causative factors and inquire into the minute details of the case before we can prescribe for it intelligently. Very often the employment of the ordinary formulæ useful in acute diarrhea gives temporary relief, but finally fails, because it simply checks peristalsis and does not remove the cause of the complaint. Thus in one instance, recently seen, the constant use of a flannel binder about the abdomen entirely cured an obstinate diarrhea which had continually recurred, and which was evidently dependent upon the chilling of the abdominal wall with consequent congestion of the intestines. Such a state is very commonly met with in young children, whose legs are often improperly clad even in cold weather, and in persons who continually go about with wet feet. Therefore proper clothing and careful methods of life are absolutely necessary for recovery.

Again, there is no doubt that the diet of such patients receives too little attention in many instances, and a careful study of the ordinary diet of a given case may reveal some article evidently at fault, the prohibition of which is followed by cure. In close connection with this subject is that of drink.

Many cases of morning diarrhea are distinctly modified if the patient steadfastly refrains from drinking much liquid the evening before. This is probably due to the fact that the presence of much fluid in the upper bowel causes excessive peristalsis during the night, and this fills the lower bowel with fluid before enough can be absorbed to cause the contents of the colon to possess the proper consistency. Further, this lack of absorption of fluid causes thirst, and this again provokes excessive drinking of fluid.

Finally, a word or two as to medicinal treatment. In many cases in which the fault lies in faulty digestion, the administration of some active digestant is advisable. If the nitrogenous foods seem especially prone to cause the disorder, the use of a liquid preparation of pepsin with hydrochloric acid may be a wise procedure, such as:

℞ Pepsin cordial, f ʒ ij;
Acid hydrochlor. dil., f ʒ jss or f ʒ ij;
Aquæ dest., q. s. f ℥ iv.
M. Sig.: Two teaspoonfuls after meals.

Or if an astringent seems advisable dilute nitric acid may be substituted; or again, if the liver seems torpid fresh nitrohydrochloric acid will be better. Sometimes where a marked astringent is needed, aromatic sulphuric acid is better still.

If the diarrhea be one of fermentation and indigestion the following may be useful:

℞ Taka-diastase, gr. xv;
Carbo ligni, gr. xv;
Pancreatin, gr. xv.
M. Ft. in chart vel capsule No. xx.

If fermentation is particularly marked, salol may be added for its antiseptic effect.

If the diarrhea is due to lesions of the lower bowel, local applications are needed, and medicine by the mouth is comparatively useless. In such instances high and gently given colon injections of water, cool if fever is present, or sulphocarbolate of zinc twenty grains in each quart of water, may be useful. Sometimes an iodoform suppository containing five to ten grains of this drug will, by acting as a local sedative and alterative, do much good.

THE RELATION OF MOSQUITOES TO MALARIAL DISEASE, AND THE VALUE OF CERTAIN SUBSTANCES IN THEIR DESTRUCTION.

It may be of interest in connection with the paper which is published in the current issue of the THERAPEUTIC GAZETTE, detailing the experiments which have been made by Celli and Casagrandi in Rome upon the various substances which will destroy, or rather prevent the development of, the mosquito, to review certain facts bearing upon this theme.

To those who have not kept themselves in touch with the recent experimental work upon the ability of the mosquito to act as the inoculating agent of malarial infection, it may not seem that Celli's experiments are particularly valuable — over and above the relief which they may give from the annoyance due to mosquito bites—but as soon as one makes himself acquainted with these investigations and finds that the mosquito in certain of its varieties is fully responsible for the severer forms of malarial fever, these investigations in the line of preventive therapeutics become extraordinarily valuable.

It will be remembered that a number of years ago Sergeant Major Ross, of the English Indian Medical Service, reported certain extraordinary results found by him in the study of the *Proteosoma labbé*, which is one of the malarial parasites found in the blood of birds. His studies were chiefly connected with the observation of these parasites in gray mosquitoes, and he found that mosquitoes were the means by which malaria of the avian type was conveyed from one bird to another.

These investigations led Manson to advance the hypothesis that human malaria was due to this cause. And the next step of any great importance was the observation of MacCallum of another form of malarial parasite infecting birds, viz., the *Halteridium labbé*. This investigator showed beyond all doubt that the flagella derived from this parasite — and it is well known that similar flagella are given off by the parasites of human malaria — represent sexual elements. He found that there were two forms of halteridium, one hyaline in character and the other granular. It is the hyaline form which undergoes flagellation; the granular form never undergoes this change. The process carried out is as follows: The flagellum, tearing itself loose from the hyaline form, approaches and penetrates the granular form, and from this union, or fertilized parasite, an actively moving organism develops. While MacCallum's observations only dealt with the parasite of birds, Bastianelli and Bignami, two Italian investigators, have found that there are two forms of the tertian parasite of man

as well. The male form they call "Microgametocytes," the female form "Macrogameti." The nucleus of the male form is small and centrally situated, and that of the female is situated at the periphery and is larger.

These observations have also been still further confirmed by the fact that after MacCallum had observed these conditions in the blood of birds, he also saw the same process of fertilization take place in the blood of a woman who was suffering from estivo-autumnal fever.

Major Ross, in 1897, found certain peculiar pigmented cells in the stomach wall of two mosquitoes fed on the blood of a patient suffering from estivo-autumnal fever, and furthermore he found that these cells were only found in mosquitoes which had been fed upon the blood of patients so infected. Ross has also shown that these reproduced bodies accumulate in a small gland situated near the proboscis of the mosquito, and it is believed that when the mosquito bites an individual, the individual is thereby inoculated with the malarial parasite, which rapidly develops in his blood.

Convincing evidence of this has been advanced by Grassi, who found that three varieties of mosquitoes are constantly present in malarious districts and absent in districts where this disease is unknown; and further, that one of them, the *Anopheles claviger*, is found in districts where tertian malaria is present, whereas the other two forms, viz., *Culex penicillaris* and *Culex malariæ*, are invariably found in those localities and at those places where the estivo-autumnal fevers are present.

Further, Grassi has taken mosquitoes from malarious districts and allowed them to bite individuals who have never had malaria, and produced malarial fever in these individuals. This experiment has been verified by other observers.

Much of this information is derived from the article of Dr. W. S. Thayer in *Progressive Medicine*, and that of Dr. Futcher in the *American Journal of the Medical Sciences* for September, 1899, and also from an article recently published by Ross in the London *Lancet*. Taken in conjunction with the studies published in this issue of the GAZETTE they show clearly the interesting and valuable results of an original research in which investigators from all parts of the world have given their best efforts for the relief of a common malady.

THE BUILDING OF A NOSE UPON A METALLIC BASE.

Though there have been many cases reported in the journals, and often with convincing illustrations, showing that defects of the nose or the almost complete destruction of this organ may be remedied by the building up—by transplanting flaps—of a new nose upon a framework of celluloid, platinum, or other smooth rigid material, the profession has not been enlightened as to the ultimate results of such operations.

To the surgeon it seems obvious that in many of these cases there would ultimately result either persistent suppuration or exposure of the foreign body by perforating ulceration of the transplanted flaps, or necrosis of the bones upon which the bridge is supported.

Martin (*Revue de Chirurgie*, No. 8, 1899), who warmly advocates this method, states that this ulceration is generally due to the fact that the flaps taken for the formation of the new nose are insufficient. As a proof of this he publishes two photographs—one of his patient taken immediately after the operation in 1878, and exhibiting a nose apparently afflicted with elephantiasis; the other taken in 1898, showing a nose of almost normal size, and if not beautiful, certainly much better than the total or partial absence of this organ.

The base of support, not necessarily bone, should be large and should not be subject to any great pressure. The formation of this base of support is accomplished by an ingenious method, fully described and illustrated by Martin.

Martin acknowledges that the scaffolding upon which the nose is built may be displaced and be subject to constant motion by the contraction of the face muscles. This, he maintains, can be prevented by firm fixation; indeed, he holds that all accidents incident to this method of rhinoplasty are easily avoided. He quotes a case operated on by Bonet in 1885 in which the result is as admirable to-day as it was a few months after the operation. It is, however, suggestive that these two cases are the only successful ones cited in the article, and that Martin elaborated his method and published it in 1889.

It is to be hoped that the ultimate results of these operations, which have certainly been performed by the hundreds, may be published; since thus we may learn to judge truly of the value of the method, and in case

it is only exceptionally successful, patients may be spared a procedure not free from pain or even danger, and which affords but a slight prospect of a cure.

AMPUTATION THROUGH THE HIP-JOINT.

This operation, at one time regarded as among the most formidable in surgery and presenting a mortality so high that few surgeons either advised or performed it, has, with the improvement of technique and the fuller recognition of the means by which surgical shock can be prevented and treated, been followed by such admirable results and been so generally practiced when the indications for its performance are present, that it has to a great extent ceased to be a prominent topic in current literature.

A historical account of the development of the operation, such as is given by Levison in the *Journal of the American Medical Association* of June 24, 1899, in relation to two successful operations of this nature, both performed on the same morning, is of very great interest. He recalls the fact that this operation was not performed until the end of the eighteenth century, when Larrey, the then master of his art, of seven such operations lost all his cases. Blaudin, however, in 1794 saved one of three cases.

The first successful American operation is accredited to Brashear, a Kentuckian, in 1806. The appalling mortality shown in Ashhurst's tabulation of 633 cases, over sixty-four per cent, applies to the preantiseptic period, during which time there was no considerable advance in technique made.

The suggestions of Woodbury, to compress the common iliac artery with the fist inserted in the bowel; of Davy, who advocated the use of a lever; of Jordan Lloyd, who used a rubber bandage; of Trendelenburg, who advocated the use of a steel needle and rubber ligature; of Thomas, who practiced subcutaneous ligature; of Macewen, who compressed the abdominal aorta beneath the umbilicus, by means of the fist applied against the vertebral column through the abdominal wall; and of other ingenious surgeons, are mentioned and described, including McBurney's method of direct intra-abdominal finger compression of the common iliac artery, practiced by incising the abdominal wall as in appendicitis operations. The finger is introduced through the incision and compression made.

Wyeth's modification of the Trendelenburg method was practiced and is advocated by Levison, and, indeed, it is commonly accepted as the most serviceable by the profession. This method has reduced the mortality from sixty-four to sixteen per cent, as shown by sixty-nine cases tabulated by Wyeth.

Erdman states that from 1884 to 1894 there were eighteen hip-joint operations done in the New York hospitals, with eight deaths. Of these, but seven were done by the Wyeth method, and all recovered, leaving eight fatal cases out of eleven done by other methods.

Levison has collected twenty-eight cases since Wyeth's statistics were published, dating from 1896, with three deaths, giving a mortality of 10.7 per cent.

Levison firmly believes that the mortality of the cases collected by him since 1896, since which time hypodermoclysis has been generally resorted to, shows that this precaution accounts for the diminished death-rate.

Furneaux Jordan's method, practiced mainly in England, has been modified by Wyeth in such wise that the stump is shorter, the section through the muscles being made at the level of the trochanter minor.

It is probable that the comparatively meager number of reports found in current literature, forming in a way an insufficient basis for study and particularly for tabulation and computation of mortality, is due to the fact that this operation is no longer unusual, and that recovery is the rule rather than the exception. The need for hypodermoclysis is the exception rather than the rule, since when the operation is performed with any degree of skill it is practically bloodless and the shock is consequently a minor factor. When performed for the removal of crushed and lacerated limbs, the immediate mortality will still be high, since the fatal injury has usually been inflicted before the surgical operation is performed. Under these circumstances hypodermoclysis and the modern treatment for shock may be life-saving. A convincing statistical evidence to this effect would be most valuable.

Reports on Therapeutic Progress

THE ETIOLOGY AND TREATMENT OF IRITIS

Mr. JOHN GRIFFITH writes on this topic in *Treatment* for June, 1899. He thinks that local treatment deserves the first thought. Mydriasis is produced by the instillation of a

one-per-cent solution of sulphate of atropine. The value of atropine is not merely to prevent adhesions of the iris to the capsule of the lens, though this is of paramount importance, but also, by paralyzing the ciliary muscle as well as the sphincter pupillæ, to secure complete intra-ocular rest—*i. e.*, to suspend for a time all muscular movement within the eye, this to obtain physiological rest, the first and highest aim in the treatment of all acute inflammations. It is sometimes desirable to atropinize the second eye as well, even though not inflamed; by doing so, reading or using the sound eye for near work is successfully prevented. Atropine has still other advantages: it is an antiphlogistic; it reduces the amount of exudation and promotes absorption; it acts also as a local sedative. It is without doubt the drug *par excellence* for iridocyclitis. How much cocaine augments its action it is difficult to estimate; perhaps it does assist its sedative action to a slight extent. Besides the use of atropine, further local treatment is necessary. The eye should be protected from the light either by means of a broad shade, by the wearing of tinted goggles, or by the patient being kept quiet in a darkened room. In the worst cases, when the inflammation is most acute and the conjunctiva chemosed, absolute rest in bed is most essential. Local depletion by the application of leeches to the temple gives almost immediate relief, which is usually permanent. No drug can ease the pain so soon nor so effectually. The use of Heurteloup's artificial leech is better than no bloodletting, but cannot in point of efficacy be compared to the natural leech.

Hot applications to the eye are also very serviceable, especially in the rheumatic variety. The heat may be applied moist or dry. The dry pads may be kept on for some time without changing, but the fomentations should be repeated every half-hour.

Local treatment varies very slightly whatever the cause may be; there is, however, a point to bear in mind, and that is the occasional idiosyncrasy a patient has with regard to atropine. Atropine will sometimes create a severe local inflammation of the skin and cellular tissue of the eyelids and cheek, accompanied very often with a papular rash. Even a single drop of a weak solution may cause it to appear, and unfortunately the other mydriatics may all act in a similar fashion. The use of hydrobromate of scopolamine appears to be the least likely to be attended with such a consequence. Atropine poisoning in contradistinction to atropine irritation is less common, and the milder symptoms—dryness of throat, thirst, anorexia, sleeplessness, etc.—can usually be prevented by advising the patient to keep the lacrimal sac compressed for a few minutes after the drop has been instilled.

Before passing on to the treatment peculiar to the cause, there are a few facts to be borne in mind. At the commencement of every attack of iritis a free purge must be given overnight and a "black draught" in the morning. Alcohol should not be taken in any form, nor should smoking be allowed. Rest in bed should be determined by the severity of the case. In the slow chronic forms of serous iridocyclitis, which often run a course of six months or longer, it would be wrong to keep the patient a prisoner; he must have outdoor exercise, and it may be necessary to send him away to the seaside for a few weeks.

It is obvious that constitutional treatment plays an important part in cases of iritis due to gout, rheumatism, syphilis, diabetes, etc.

A patient suffering from gouty iritis requires his diet to be carefully regulated, to have his excretory organs properly attended to; and in that way to have his system cleansed. His bowels should be freely evacuated daily; he should be made to sweat freely either by injections of pilocarpine hypodermically, or by taking a Turkish bath twice or three times a week. These cases are also much benefited by leeching, and by the free administration of mercury.

In rheumatic iritis not dependent on gonorrhea, salicylate of sodium may prove of great service and may relieve the pain without the necessity of leeching, or even if the pain returns after the good effect of the leeches has passed off; but it cannot be relied upon. Iodide of potassium is another drug valued in the treatment of rheumatic iritis, even if it be of gonorrheal origin. It does not, however, give very striking results, and in anemic subjects may be not only useless, but actually harmful. Quite recently two cases of rheumatic iritis have come under Dr. Griffith's care which he says were very obstinate indeed; no drug seemed to benefit them, and iodide of potassium certainly seemed to aggravate the condition. Upon giving strychnine the iritis in each case cleared up rapidly.

With regard to iritis caused by syphilis, there is little to write on constitutional treat-

ment. Mercury in some form or other is attended with the best results, and even if anemia be present—which is often dependent on the syphilitic virus—mercury should be persevered with. One of the worst cases of syphilitic iritis Dr. Griffith has ever witnessed, in which a large gummatous growth rapidly developed in the ciliary body, with ectasia of the sclera, yielded eventually to mercury. The patient was under the care of Mr. Juler, who pushed the mercury till its influence on the system was shown, and in spite of severe anemia the cure was marvelous. The inflammation and growth disappeared, and the anemia was also cured. Whether iodide of potassium by itself is of much service in iritis of syphilitic origin it is difficult to say, as mercury is usually combined with it; but mercury alone, or in combination with the iodide salts, is the best drug, and might safely be given in any case the cause of which is uncertain.

Diabetic iritis, like syphilitic iritis, is, contrary to what one would expect, very amenable to treatment. Besides the usual local remedies, codeine should be given internally and an anticarbohydrate diet taken. The exudation of lymph in the anterior chamber quickly melts away, and the eye returns to its healthy state.

One of the most interesting problems in ophthalmic surgery is the treatment of tuberculous iridocyclitis. The disease does not cause much if any pain until the advent of glaucoma. Glaucoma, moreover, does not develop in every case. There is iritis seen in some; in others there is very little visible inflammatory reaction. The growth gradually enlarges till the anterior chamber is for the most part filled, and then an ectasia of the sclera in the ciliary region appears. The question to be determined is how soon should excision be performed when the condition is recognized? And again, whether it is wisdom to excise the eye, as it may be regarded as a local deposit from some more gross tuberculous lesion in some remote part of the body, probably the lungs. It happens that in many instances no evidence of tuberculosis elsewhere can be discovered. Can this be the sole focus of the disease? If so, excision should without hesitation be adopted at the earliest possible date so as to remove the danger of dissemination. Dr. Griffith says the danger of dissemination seems to him to be in direct ratio to the tendency to caseation. In the eye tuberculous disease originates most frequently in the anterior part of the uveal tract; it is recognized, therefore, early, and excision is consequently resorted to long before caseation has taken place. This is fully proved on the examination of such eyes; it is very exceptional to find any caseating focus. Moreover, the danger of spreading to the other eye is remote indeed. He has never seen, read, nor heard of the second eye becoming tuberculous. In these two respects a tuberculous eye differs very materially from a tuberculous testis, hence it seems unnecessary to doubt the proper course to pursue. It seems to him that the eye should be excised at the earliest possible moment when any doubt as to the diagnosis has been sufficiently cleared up.

THE TREATMENT OF PRURITUS.

In treating pruritus it should be remembered that it may be both primary and secondary. In the primary cases it is simply due to some local irritation of the skin; in the secondary cases it arises from Bright's disease, jaundice, diabetes, acid dyspepsia, and similar conditions. Pruritus can also be divided into generalized itching and local itching. The generalized form often comes on periodically, and its onset is often produced by disturbances of the emotions, severe intellectual disturbances, marked alterations in diet, sudden variations in temperature, and particularly the development of heat of the skin when the patient gets into a warm bed after undressing in a cold room.

Besides these forms we also have that generalized form of pruritus which is seen in old persons, and apparently depends upon malnutrition of the skin and upon gouty tendencies. In the way of localized pruritus we have that form which invades the neighborhood of the anus and is most frequently aroused at night, affecting often the coccyx and scrotum, and often aggravated by the presence of hemorrhoids.

In women we frequently have pruritus of the vulva produced by pregnancy, the menopause, and local irritation. Pruritus of the prepuce in males is often due to the passage of diabetic urine. Very rarely indeed pruritus of the palms and plantar surfaces is met with. This affection, although rare, is usually persistent.

In making a diagnosis of pruritus it must be remembered that anal pruritus may be due to the presence of seat-worms, and that itching of the skin in other portions of the

body may be due to various parasites, such as pediculi and scabies.

The treatment of pruritus depends very much upon the condition which produces it. In cases of jaundice, the use of phosphate of sodium and similar substances will often be advantageous. Dietetics will perhaps do the most good in cases of diabetic pruritus; taking care of the skin and the use of diuretic drugs may be of advantage in cases of renal disease. As a rule in diabetic cases, articles capable of undergoing fermentation in the alimentary canal should be avoided, particularly rich, greasy foods, and only small quantities of alcohol should be allowed, the patient living largely on green vegetables and roast and broiled meats. In many instances, particularly in those of gouty tendency, weak alkaline mineral water may be employed with advantage. Internally a prescription such as the following may be used to allay nervous irritation:

Valerianate of ammonia, 30 grains;
Tincture of valerian, 2 drachms;
Peppermint water, 3 ounces.

Two teaspoonfuls of this in a wineglassful of infusion of chamomile flower may be given three times a day.

In other instances where there seems to be intestinal fermentation a pill composed of carbolic acid 1 grain, extract of valerian 4 grains, given three times a day, may be useful.

Locally the treatment should consist in hot douches applied daily for the period of a minute, particularly over the vertebral column. In other instances full baths in which almond meal or starch-water has been added may be employed with advantage. In still other cases the addition of a quart of vinegar to the bath may be useful; and in still others the part may be locally enveloped in a cloth wet in an infusion of cocoa leaves in the strength of one-per-cent. In the way of sedative lotions the following may be employed:

Carbolic acid, 15 grains;
Glycerin, 1 ounce;
Water, 3 ounces.

Or,

Vinegar, 1 ounce;
Hot water, 3 ounces.

Or,

Hydrate of chloral, 30 grains;
Glycerin,
Alcohol, of each 3 drachms;
Water, 3 ounces.

In other cases hot water alone is of advantage, and finally may be used a lotion composed of

Corrosive sublimate, 2 grains;
Alcohol,
Cherry-laurel water, of each 1 drachm;
Water, 3 ounces.

In the way of ointments the following are useful:

Menthol, 15 grains;
Vaselin, 3 ounces;
Carbolic acid, 15 grains;
Oxide of zinc, 2 drachms.

Or,

Talc,
Oxide of zinc, of each 1 drachm;
Powdered camphor, 15 grains;
Vaselin, 3 ounces.

In some cases a dusting powder may be useful, as for example:

Talc, 2 ounces;
Subnitrate of bismuth, 2 ounces;
Oxide of zinc, ½ ounce;
Powdered camphor, 30 grains.

Orthoform has been employed in powder or ointment in some of these cases with temporary benefit, but it sometimes causes local irritation of the skin.

In some instances the application of the continuous galvanic current to the skin is of advantage, the positive pole being placed over the itching part and the negative pole at some distant point.

In very malignant cases good results have followed linear scarifications or the use of superficial cauterization with the thermocautery or with the electrocautery.

Of course, these methods are only useful in cases in which the affection is localized.—*Journal des Praticiens*, June, 1899.

CHRYSAROBIN A SPECIFIC FOR WARTS.

G. M. Fitz, in the *Boston Medical and Surgical Journal* of June 29, 1899, says that since 1895, when Dubreuilh called attention to the presence of warts on the feet, the characteristic differences between warts and corns have been more or less generally recognized. Warts on the feet are readily distinguished by their location (usually upon the plantar aspect of the foot) and by their bleeding from a central, vertical bundle of papillæ arranged like a pepper-box and ordinarily projecting somewhat above the pared surface. This central bundle of papillæ is surrounded by a thickened area of skin penetrating to a greater or less depth and an outer painful zone of inflamed skin.

In 1891 Dr. Fitz saw for the first time a wart in this situation and attempted to cure it with salicylic acid in collodion. He found after a trial of three weeks that this was not effective. He was then led from its superficial resemblance to the lesion of psoriasis (bleeding points) to try a solution of chrysarobin in gutta-percha. The wart was thoroughly pared until there was profuse bleeding, and the solution applied to the denuded surface. The patient was directed to cut the surface every night and apply the chrysarobin. In a few days the pain disappeared, and the wart seemed diminished in size. In two weeks' time the wart was practically gone and the surface restored to its normal condition.

Since that time he has been able to apply chrysarobin in eight cases of warts similarly located. Some were apparently due to stone bruises; others to the irritation of defects in the boot; and of others, again, no history could be obtained. In one case there were three warts on the ball and two upon the heel of the same foot. Several of the cases came to him after having been treated for months by salicylic acid without success, even though the physician in charge had made the application himself each week.

In most cases the chrysarobin produced little effect before the end of the first week, except that the pain became less and the wart did not increase. In the second week change was rapid in most of the cases, although in a few cases there was still little effect. In the third week the majority were cured.

In the series of eight cases there have been no failures. Two apparent failures were traced to difficulty in paring the wart, and as soon as this was remedied by sandpapering the cure progressed favorably. On the whole, careful thinning of the surface with a sharp, fine glass-paper gives better results than paring with a knife, as the patient is less afraid of injuring himself and can more conveniently handle the paper.

Dr. Fitz's experience has been that chrysarobin may be applied either in a ten-per-cent solution of the ordinary gutta-percha solution or in a ten-per-cent ether solution. It is best to apply the chrysarobin at night, and to advise the patient to put on an old stocking, to prevent soiling the bedclothing. Application once a day in this way seemed ordinarily to be sufficient, but in obstinate cases it should be applied both night and morning.

The influence of the chrysarobin seems to be not only upon the keratinized portion of the skin, but also upon the proliferated blood-vessels in the papillary central part, for both disappear and true skin is formed over the surface. No scab was thrown off, but a considerable thickness of the surface was removed in each case by cutting and sandpapering.

A correspondent has reported two additional cases of cure with chrysarobin, making the total number of cases ten. The attempt to try the effect of chrysarobin on warts on other parts of the body has been possible in but one case (warts on the hand), where it had the same favorable effect.

Experiments with chrysarobin on corns show that it has practically no effect.

The claims of chrysarobin as a specific for warts may be summed up as follows:

1. Success in a series of ten cases of warts on the sole of the foot in which the diagnosis was perfectly clear.
2. Similar success in one case of warts on the hands.
3. No failure in any case where the application was made repeatedly on the denuded surface of the wart.
4. No subsequent recurrence of the wart.

TO HEAL VACCINATION SORES.

A. K. Bond writes in the *Maryland Medical Journal* of July 1, 1899, of his method of treating vaccination sores. He first points out that if the glycerinated virus proves satisfactory in its potency, and in its ability to keep its strength, as numerous competent observers claim that it does, the danger of accidental infections of the original inoculation scratch will be greatly reduced, especially if the scratching instrument is carefully disinfected by red heat or pure carbolic acid, if the skin is previously washed, if the virus is conscientiously made, and if the site of the vaccination is dressed aseptically until it is restored to its natural condition.

Practically, the physician has to dress many suppurating sores of vaccinations made by himself or by others.

The belief prevails in the community that a sore half an inch or more in diameter suppurating for weeks, or even for months, is an occasional sequel of successful vaccination which must be borne with patience, and is to be treated as well as may be with dressings of mild powders and salves of various sorts. The exposure of this error, Dr. Bond says, is his motive in writing the present article. He states that he knows by experience in their treatment that the most repulsive of such

sores may be caused to cease suppurating and to become a dry-scabbed sore in even a single painless dressing, and may be healed within perhaps a week. At first he supposed this fact was known to the mass of practitioners, but apparently it is not. The dressing referred to is a solution of nitrate of silver, about eighty grains to the ounce of distilled water. When such a sore is brought to him, he removes the scab if it has one, washes the surrounding skin clean, perhaps using alcohol, and mops the sore carefully with the silver solution until its surface is covered with a thick layer of white. When this has dried, a dressing of absorbent cotton with bismuth, or what not, dusted on it is applied. The pain of the silver in this strength is insignificant, the itching and irritation greatly diminish or disappear, the suppuration is permanently or for many days stopped, and the patient almost forgets the sore. In some cases the dressings begin after a week or more to become soaked with pus. A second nitrate of silver application may then complete the healing.

Dr. Bond says that before he learned this method of healing he used to consider post-vaccinia sores among the most disagreeable sores a physician has to deal with. Under dry dressing of bismuth, calomel, etc., they scabbed and suppurated off, and scabbed and suppurated, until both patient and doctor were tired and disgusted with them. Antiseptic ointments did cause scabbing but did not check suppuration. He finally tried nitrate of silver stick with great benefit, but timid children would never let him get near the sore a second time on account of the pain of the caustic stick. The eighty-grain solution is almost painless, yet very efficient; children seem not to dread its repetition. After the first dressing Dr. Bond has sometimes ordered a small quantity and directed the mother to make subsequent dressings with it until healing was accomplished.

Dr. Bond says he is encouraged to bring this very small therapeutic point to the attention of the profession by his knowledge of the fact (deduced from observation) that whenever smallpox threatens, and vaccination becomes general, there are in the community dozens, perhaps hundreds, of men, women, and children going about week after week with nasty sores which daily saturate the dressings and perhaps the clothing of the part with irritating pus, until the victims come to look upon vaccination as a very disagreeable ordeal to be avoided as long as possible in themselves, their children, and their friends, and welcome any statements, however ill-founded, that profess to prove that "vaccination is unnecessary and nearly as bad as smallpox." What wonder, if the patient has two or three months of discomfort whenever he submits to it? [This would not happen if good glycerinated vaccine was used.—Ed.]

Dr. Bond is accustomed at the time of vaccination to request his patients in case any pus discharge occurs to go to him at once, and to assure them that in a few days, perhaps in a single dressing, he will relieve them of all discomfort therefrom. He says the only reason he can suggest for the obstinacy of suppuration of these sores is that the sore was originally a pustule, and that when the top, or scab, comes off it leaves exposed at its site a pit walled and floored, not by healthy tissue, but by the bacteria-infected lining of the pustule. He cites the aphthous sore of the mouth as an analogy, where the floor of the vesicle is a tough nest of irritating materials, which, when cauterized away, layer after layer, leaves beneath a simple healthy wound. The granulations which spring up from the floor of the uncovered vaccination pustule seem to be very weak; hence the value of the mild caustic, whose stimulating and disinfecting powers act more deeply than simple surface washes or antiseptic salves.

Dr. Bond has reflected upon the question whether all vaccination vesicles ought not to be at once opened upon their appearance, and, by nitrate of silver or other like application to their interior, brought at once to abortion. This method has been adopted by some in smallpox eruption upon the face and hands. If the whole protective influence of vaccinia has been already received when the papule begins to swell into the vesicle, the prevention of the maturation of the vaccinia vesicle by any harmless measure would be a reasonable and desirable undertaking. It is possible, however, that substances absorbed from the vesicle intensify and complete the immunity, but he thinks it unlikely. The trouble is that since smallpox inoculation has been discontinued there is no easy way in which the efficiency of various modifications of the Jenner method of vaccination can be readily and positively tested by the civilized practitioner. Rather than trust to speculation he is inclined to follow the positive provings of Jenner's age.

THE IMPORTANCE OF THE PRESERVATION OF BODY TEMPERATURE DURING RESUSCITATION OF THE NEW-BORN CHILD.

With the exception of a faintly beating heart, the infant born asphyxiated has all its organs in a state of rest. Functional activity is almost at zero. An infant born dead will have the temperature of the mother. Lying in a room heated to 70° F. uncovered, it will lose ten degrees of temperature in fifteen minutes. Swung through the air, it will lose from twelve to fifteen degrees in as many minutes, depending somewhat upon its plumpness.

An adult exposed to cold that proves fatal is dead before any such loss of temperature prevails. Infant asphyxiation may be due to maternally administered anesthetics, or narcotics, to pressure on the head by forceps or molding, to tonic spasm of the uterus, to intracranial blood-pressure, to pressure on the cord, to shock from manipulations of the cord, to distortion of fetal attitude, and various other causes. In many of these varieties, conspicuously those of anesthesia and narcosis, voluntary resuscitation will ensue if simply the loss of animal heat is prevented for about fifteen minutes.

In a thousand cases of resuscitation the "safety point" will be reached in ten minutes with sixty per cent; in fifteen minutes with twenty-five per cent; in twenty minutes with ten per cent; in twenty-five minutes with three per cent; and the remaining two per cent through a period up to an hour and more.

So long as the fetal heart action continues resuscitation is possible, and this automatic, rhythmical action continues much longer than is generally supposed. Neugebauer reported in the *Centralblatt für Gynäkologie* of November 26, 1898 (see *Obstetrics*, January, p. 21), the continued contractions of the heart of a fourteen weeks' old embryo for three hours, pulsations occurring every two to three minutes. Opitz (see *Obstetrics*, p. 150) reported in the same journal two cases of fetus at term with the heart beating for thirty minutes, and capable of further contractions after removal under stimulation of a needle. Much longer cases of postpartum heart beating with no respirations have been reported, and no doubt many a still-born child has been laid aside as dead whose heart was still contracting. The ideal method of resuscitation will use the best combination of all aids to respiration, vascular and cardiac circulation, and equilibrium. Blood communication between child and placenta should remain unimpeded; the uterus should not be handled, unless it is bleeding; alternate compression and expansion of the chest should be achieved with freedom; insufflation should be available if required; alternate application of heat and cold, spanking, throat cleansing, etc., etc., should be ready at hand, which may include stretching of the sphincter ani, traction of the tongue, and use of the now ubiquitous electric current; but, above all, should be included the preservation of the body heat up to normal temperature.

The following method of resuscitation has been employed for over a dozen years with growing favor: A vessel one and a half by two feet and six inches deep is half filled with water, as hot as the hand can comfortably bear, and brought close enough to the mother to receive the child without causing traction on the cord. The child is held with the back of the neck resting in one hand and the posterior knee and thigh surfaces in the other. It is then immersed in the hot water, and artificial chest action secured by alternately bringing the knees and head together and apart (Dew's method), the mouth being kept above water. At intervals of ten to fifteen seconds it is dipped once in very cold water in another bowl, then immediately returned to its hot-water bath. When first placed in the hot water it will turn quite "blue," due to temporary paralysis and expansion of the skin capillaries. All other adjuvants to resuscitation can be applied with the hot-water immersion kept up practically all the time. In the asphyxia of narcosis, anesthesia, and cerebral congestion, more time is given for the restoration of equilibrium in the circulation by sustaining the body temperature, and in the asphyxia of anemia (pallida) the hot bath wards off the most imminent danger — cold — and sustains the flagging heart. The cord must not be handled. We know that moderate manipulation of it *in utero* causes heart shock and death. The uterus must not be "Crédéed." If we compress the fundus we might as well sever the cord. The foramen ovale may not close while the blood runs from placenta to child, nor the respirations start up promptly as our anxieties might foolishly desire; but we should not wish to have them do so, for while the mother still breathes for her child its circulation is gaining the equilibrium of its equable surroundings.

Let us condemn and do away for all time with the aerial gyrations of Schultze's method. It is spectacular, but chilling. It is resuscitating to the operator, but deadly for the fetal heart. It is efficient in lung expansion and compression, but no better than Dew's. It gives the stimulation of cold air, but prevents the use of heat, which should be used in the proportion of ten to one in favor of heat. It robs the child in its direst need of its second mother — the placenta — and must succeed promptly or fail altogether. It was conceived with an eye single to lung expansion, and reminds one in its narrowness of wisdom of the bear in the fable which was appointed to keep off the flies from his master who slept. He killed one, which had alighted upon his master's nose, with a large stone, thrown with wonderful accuracy of aim, and wondered why his master did not awake and thank him.—Editorial in *Obstetrics* for June, 1899.

A PRESCRIPTION FOR A HEMOSTATIC-ANESTHETIC SOLUTION.

Legrand employs the following solution, particularly in lesions of the mouth, where it is desired to produce anesthesia and arrest small hemorrhages:

Pure gelatin, 30 grains;
Chloride of sodium, 8 grains;
Carbolic acid, 2 grains;
Hydrochlorate of eucaine B, 8 grains;
Hydrochlorate of cocaine, 2 grains;
Distilled water, 3½ ounces.

—*Journal des Praticiens*, May 13, 1899

THE TREATMENT OF WHOOPING-COUGH.

The *Journal des Praticiens* of May 13, 1899, after pointing out the necessity that the child should live in a room at the proper temperature and have plenty of fresh air, and should be given easily digested food frequently, suggests the following internal treatment for use as soon as it is decided that the child is suffering from the disease:

Externally the chest is rubbed morning and night with a liniment composed of essence of turpentine and oil of sweet almonds, equal parts. Care must be taken that the pure turpentine is employed, and if the child's skin is irritated by it the strength should be decreased. The object is to produce slight reddening but no further irritation of the skin. It is thought that the counter-irritation and the inhalation of the turpentine exercise a favorable influence upon the respiratory passages.

In regard to internal treatment, a good many remedies are employed, but nearly all of them have disadvantages. Aconite is too depressing; belladonna and codeine are too powerful, and check secretions. Antipyrin is apt to interfere with the functions of the kidneys, but inhalations of oxygen are advantageous, and bromoform is recommended by Marfan as distinctly useful. The prescription for bromoform may be as follows:

Chemically pure bromoform, 10 drops;
Alcohol (90 per cent), sufficient quantity to hold the bromoform in suspension;
Syrup of orange flowers, 1 ounce;
Simple syrup, 2 ounces.

This prescription may be given in the dose of one to five teaspoonfuls each twenty-four hours. To a child as young as six years a teaspoonful at seven in the morning, at midday, and at five at night is about the proper dose. It must be remembered that bromoform is a remedy of very great power and that it must be used with some caution.

THE TREATMENT OF DIABETES.

GUIRANNA (*La Clinica Medica*, An. 5, n. 19) speaks very highly of a diet of fresh vegetables in the treatment of diabetes. In bad cases he finds that much benefit is derived from an exclusive diet of fresh vegetables for a few days, but in ordinary cases a mixed diet is sufficient. The vegetables recommended are endive, cabbage, French beans, artichokes, and in general all green vegetables. Peas and beans, provided they be fresh, may be taken in small quantities (¼ kilogramme). The author also allows fruits in moderation. The only saccharine substance allowable is levulose, from 50 to 200 grains a day. Probably the reason why green vegetables are tolerated so well is because the starch is converted into levulose and not dextrose. The objection to saccharin and dulcein for sweetening is that they do not represent a food, but a foreign body, in the organism, and being of the aromatic series, and as such non-assimilable, only increase the amount, already copious enough, of waste products in the body. The author has no great faith in drugs, but thinks certain mineral waters, alkalies, massage, and baths more useful.—*British Medical Journal*, June 24, 1899.

STRUMOUS OPHTHALMIA.

Mr. Maitland Ramsay, in the *Edinburgh Medical Journal* for July, 1899, gives the following directions as to the treatment of this somewhat obstinate disease:

In addition to the careful supervision of diet, the free elimination of the toxins, which as a result of malassimilation have accumulated in the blood, must in every way be promoted. This is to be accomplished by stimulating the action of the kidneys, the bowels, and the skin — more especially the last. Hence the importance of the hot bath, which the child should have every night at bedtime, diaphoresis being further encouraged by the wearing of a warm flannel nightgown. It is usually advisable first of all to administer a dose of castor oil; but it should be borne in mind that many of these children do not bear purgatives well, as the intestinal mucous membrane is so irritable that troublesome diarrhea is easily induced.

Of drugs, none is so useful as tartar emetic, which should be given in slightly nauseating doses. Its chief virtue depends on its diaphoretic action, and its efficacy is greatly increased when it is administered with a laxative, *e. g.*, powdered rhubarb. If the tongue be brown, a few grains of gray powder may be added with advantage to the rhubarb and antimony combination. Under this treatment it is wonderful how soon the whole appearance of the patient changes. As the power of digestion becomes greater, the skin improves in color, the hands and feet keep warmer; and the child, instead of lying with its face buried in a pillow and fretting and crying when spoken to, is now quite good-tempered, and runs about the ward and amuses itself with its playthings. Any indiscretion in diet will, however, promptly bring on a relapse, for in these cases the conjunctiva reflects the condition of the gastrointestinal mucous membrane even more quickly than the tongue. Intolerance of light, blepharospasm, and increased lacrimation speedily show themselves after some forbidden food has been eaten, while the tongue may not become furred till the second or even the third day. The fear of relapse makes it imperative, therefore, that the treatment be continued for at least a fortnight after the recovery seems complete. Apart from simple digestive agents, such as pepsin, pancreatin, etc., no medicines are as a rule necessary, but most of the patients are benefited by quinine, which, either alone or in combination with an acid, seems to exercise a favorable influence after the acute symptoms have subsided.

Cod-liver oil, compound syrup of the phosphates, syrup of the iodide of iron, etc., are also very valuable remedies, but they should never be prescribed in the early stages, for they then simply add to the difficulties by still further overtaxing the digestive powers. When, however, all feverishness has disappeared, and the tongue is clean, they are decidedly helpful in improving the general nutrition and promoting the repair of any local lesions in the eyes themselves. All syrups, however, such as chemical food, etc., must be used with great caution, lest they disturb digestion, and so determine a relapse. Dusart's syrup of the lacto-phosphate of lime and iron is the most easily assimilated; but as a general rule preparations in which sugar is replaced by glycerin or malt extract are safer. When there is much enlargement of the glands, a mixture of chloride of calcium and iron is very serviceable.

For the first few days of the treatment the patient should be kept in bed, with the eyes shaded from the light; but the use of all poultices and bandages must be strictly prohibited. Whenever improvement begins, the child ought to be encouraged to run about, and, if possible, sent to the country, preferably to a high, dry, bracing locality, and it should live out-of-doors as much as the weather will permit. The seacoast should be avoided, as the glare from the water is apt to prove irritating to the eyes, and to cause a relapse.

The local treatment will necessarily vary according to the stage of the disease. The child's hands and face must be washed frequently, and, as far as possible, it ought to be prevented from crying and rubbing its eyes. The eyes themselves should be bathed night and morning—oftener if there be much discharge — with a warm solution of boracic acid, or a lotion containing perchloride of mercury and belladonna. While the symptoms of acute irritation last, atropine and cocaine, by soothing the nerves of the conjunctiva and diminishing the congestion of its blood-vessels, lessen the photophobia. Whenever the pupil dilates, the child usually opens its eyes; but when the superficial irritation is great, the action of the atropine persists only for a few hours, and in order to obtain full benefit the drug ought to be reinstilled whenever the pupil begins to contract. As the blepharospasm lessens the cocaine may be omitted from the ointment,

and the atropine combined with boracic acid or the red oxide of mercury. Even in cases which have lasted for a long time, leeches or blisters should not be used.

After the acute inflammatory symptoms have somewhat subsided, more stimulating applications are necessary, and calomel and the yellow oxide of mercury are the two favorite remedies at this stage. The former is most serviceable in relieving passive congestions. It must be dried thoroughly and flicked from a camel's-hair brush into the conjunctival sac. Its beneficial action seems due to the fact that calomel becomes, by the action of the tears, converted into perchloride of mercury. It is therefore necessary to be careful not to use it too freely, or in too coarse powder, for any excess collects in the lower retrotarsal fold, upon which it is apt to have a caustic action. The yellow oxide of mercury often acts like a charm in cases where there is an efflorescence of pustules upon the bulbar conjunctiva. It is best applied in the form of an ointment of the strength of one or two grains of the oxide to a drachm of white vaselin. The bulk of a barley-corn of this is instilled into the conjunctival sac, and the eye gently massaged for a few minutes through the closed eyelids.

In an ordinary case of strumous ophthalmia no further treatment than that just indicated is required. If a case is not making satisfactory progress, careful inquiry should at once be made as to whether the prescribed diet is being strictly attended to, as well as the nightly warm bath.

When the disease has been neglected, complications arise which require special remedies.

1. Swelling of the eyelids, and mucopurulent discharge. The eyes must be kept scrupulously clean by bathing with an antiseptic lotion; and once a day, or oftener, according to the amount of the discharge, the conjunctival surface of the lids should be everted and painted with a two-per-cent solution of nitrate of silver. The presence of a fissure at the external canthus, when such treatment requires it to be carried out, adds greatly to the child's sufferings; but as this fissure will never heal until the eyes can be opened voluntarily, there is no help for it but to persevere, every care, of course, being taken not to cause unnecessary pain.

2. Inflammation of nasal mucous membrane. This membrane is swollen and ulcerated, and secretes a discharge so acrid that its presence produces much swelling of the alæ nasi and the upper lip. If the child be permitted to lie with its face buried in a pillow an eczematous eruption is sure to appear. The nostrils must be kept clean by douching with an alkaline antiseptic lotion, and the nasal mucous membrane brushed afterward with ointment, *e.g.*, a combination of iodol and tannic acid. As in these cases there is always an excess of acidity, alkalies are most serviceable. They should be given in small doses frequently repeated, and there is nothing better than a mixture of calcined magnesia and sulphur, or a combination of sulphate of magnesium with bicarbonate of sodium.

3. Pediculi. In neglected cases this is a very troublesome complication, and one regarding which the nurses must always be warned to be on their guard. In the most filthy cases it is necessary to cut the hair short, and in all the head must be washed with carbolic soap, well dried, and stavesacre ointment rubbed into the roots of the hair. By this means the pediculi themselves are destroyed, but the nits remain firmly attached to the hairs, so that after the first thorough dressing scrupulous cleanliness and the daily use of a small-tooth comb are necessary in order to prevent the vermin from reaccumulating.

4. Ulceration of the cornea. In every case of strumous ophthalmia which has lasted for a long time, the cornea is almost certain to suffer, and whenever ulceration occurs the ulcer becomes the prominent feature, and all treatment is directed toward its cure.

SUPRARENAL GLAND AS A HEMOSTATIC.

A little more than a year ago Schäfer pointed out the hemostatic effect of suprarenal in epistaxis; during the last twelve months the extract has been used abroad to control the hemorrhage in operations in the nose and pharynx. Grünbaum (*Journal of Physiology*, May 11, 1899) suggests that cases of hematemesis might be benefited by the administration of suprarenal extract, if the active principle were not absorbed sufficiently rapidly to cause a rise in blood-pressure, in which case the hemorrhage would not be controlled. The author made some observations on his own blood-pressure before and after doses of pulverized suprarenal tabloids, the hemostatic properties of which had been tested. An Oliver sphygmodynamometer was used, which, although not correct absolutely, worked excellently as a comparative instrument. The doses taken

were 10, 20, and 30 grains; the blood-pressure was taken every ten minutes for three hours after the dose; no cardiac stimulant vitiated the results of the experiments. In no case was there an appreciable increase in blood-pressure—that is, an increase beyond that of experimental error, which is 4 mm. Hg.

Another series of experiments was carried out on a woman who at one time had given the impression of being afflicted with Addison's disease. Her blood-pressure was normally 118 mm. Hg. when taking imitation suprarenal tabloids; on her being given thirty real tabloids representing 120 grains of the fresh suprarenal gland daily, no rise in blood-pressure occurred, although the treatment was continued for over a week. In one case a rise in blood-pressure was found after the administration of suprarenal; it was in the case of a pregnant woman who had some pigmentation, vomiting, great muscular weakness, as shown by the ergograph, and a very low blood-pressure. A rise from 75 mm. Hg. to 91 mm. Hg. was brought about by the administration of suprarenal tabloids, which was not maintained on the omission of the doses. The negative results as regards the alteration of blood-pressure in normal individuals make it probable that suprarenal extract is an ideal hemostatic in cases of hemorrhage from the walls of the alimentary canal or bladder.—*British Medical Journal*, July 1, 1899.

PROTECTIVE INOCULATION AGAINST PLAGUE AND CHOLERA.

The speech in which Mr. Haffkine introduced the discussion on preventive inoculation at the Royal Society places us in possession of the main facts and theories which have influenced him in the prosecution of his important work. The problems which he set himself to solve were most intricate and complex, and required talent and perseverance of an exceptional order to bring them to a successful issue. No one who listened to the address which Mr. Haffkine gave in February, 1893, when he came over from the Pasteur Institute in Paris to arrange for his visit to India to test on man the remarkable results he had worked out on animals in the laboratory with reference to the cholera bacillus, could fail to be struck by his enthusiasm, though perhaps some were skeptical of the results which would accrue from his mission to the East. Ferran's failure in Spain was too fresh in their minds to be forgotten, and though Mr. Haffkine explained the reason of failure, and showed that his method differed from Ferran's in securing a pure, stable, and controllable virus, yet the attitude of mind adopted was rather one of hope that he was right than of expectancy. The six years that have passed since then have been for him six years of continuous hard work and devotion to his self-appointed task. Gradually in that time a complete change has taken place in the general attitude toward preventive inoculation, and that change has been effected by the results which Mr. Haffkine has been able to show as following on his extensive experiments in India not only in cholera but also in plague.

Prophylactic inoculations are based upon the fact that an attack of infectious disease generally leaves the recovered patient more resistant to the second attack. On this foundation rested the work of Jenner and Pasteur, as well as the more recent work of Haffkine, their disciple. It is the success of Jenner and Pasteur which gave rise to the modern conception that artificial immunity may be created against infectious diseases by the introduction into the system of specially prepared and harmless virus; but, as Mr. Haffkine points out, the conception is too general in its nature, and its application, when undefined, is apt to lead to disappointment. The composite character and modifications of a virus, according to the way in which it is prepared, have to be taken into account. For a long time it seemed impossible to produce artificial immunity by derivatives from diphtheria or tetanus virus or from microbes in general, which cause localized infections, and do not, as a rule at least, invade the system. Similarly the different results which the same modification of a virus produces in different species of animals have to be borne in mind. While it now seems safe to assume that a form of prophylactic treatment may be found that will be useful against a particular infectious disease in a particular species of animal, yet that method may not be applicable to another animal or to another disease affecting the same animal. Professor Haffkine believes that it is inattention to variations in circumstances and conditions which has more than anything else checked the success of a number of experimenters.

The study of the anticholera inoculations in India, in which the microbes alone were used as the vaccine, brought up another problem. The Calcutta results showed that

for a period of nearly fourteen months the number of deaths among the inoculated was 22.62 times smaller than amongst the uninoculated, and for the rest of the time under observation the proportion in their favor fell to one and 1.54; but while the absolute number of deaths appeared strikingly influenced by inoculations, the special feature observed was that the proportion of deaths to those attacked among the inoculated was not changed. The fact that case incidence was remarkably affected, while the case mortality was not reduced, presented a new aspect in the problem of preventive medicine, and accordingly, in 1896, when confronted with the problem of working out a prophylactic treatment against plague, Mr. Haffkine determined to obtain not only a lowering of the susceptibility to the disease which he had succeeded in obtaining in cholera, but also a reduction of the case mortality. For that purpose he determined to employ in combination with the plague microbes their extracellular toxins. In order to accumulate these products the bacilli were grown in broth in the ingenious manner described by Mr. Haffkine in his paper. The process is continued for five or six weeks. The microbes are then killed by heating to a temperature ranging from 65° to 70° C., after which the virus is ready for use.

Mr. Haffkine quoted the statistics of three instances. At Byculla jail there were twelve cases and six deaths among 172 uninoculated inmates, and only two cases with no death among 147 inoculated inmates. At Umerkadi jail there were ten cases and six deaths among 127 uninoculated inmates, and three cases with no deaths among 147 inoculated. Again, at Undhera village, there were twenty-seven cases and twenty-six deaths among sixty-four uninoculated inhabitants, and eight cases with three deaths among seventy-one inoculated inhabitants. Other observations, such as those at Lanowlie, Kirkee, Damaon, Hubli, Dharwar, and Gadag, presented the same favorable results. The facts at Hubli showed that within a short time a town of nearly 50,000 inhabitants can be inoculated. The difference in the mortality between plague among the inoculated and plague among the non-inoculated was estimated to average over eighty per cent, sometimes reaching as high as ninety per cent. The dose of the prophylactic varied from 3 to 2½ cubic centimeters for an adult, and the duration of the effect was at least a few months, the usual length of an epidemic.

Some of the problems which remain to be worked to perfect the system were mentioned by Mr. Haffkine, and others were referred to by those who joined in the discussion. Though minor points, they are important to complete success of the general application of the system, and we have no doubt that when Mr. Haffkine returns to India after a well-earned rest from labors which have been Herculean, he will be granted full opportunities and the necessary trained assistance in his laboratory to enable him to solve them. The main and most important feature, however, of his six years' work is the grand fact, which Mr. Haffkine has established, that both cholera and plague inoculations are a success, whether they are applied on a small or a large scale, and that in this method we possess a powerful prophylactic against these two most fatal diseases.—*British Medical Journal*, July 1, 1899.

HIGH ALTITUDE AND HEART DISEASE.

BABCOCK, of Chicago, concludes an article in the *Medical News* of July 15, 1899, on this subject with these words:

1. All forms of cardiac disease do not contraindicate sojourn at a high altitude.

2. The ill effects of low atmospheric pressure in some forms of cardiac disease are explicable on the hypothesis of acceleration of venous flow and corresponding quickening of the heart-beats.

3. Consequently those forms with which high altitude is likely to prove incompatible are pronounced aortic or mitral stenosis, and regurgitant disease complicated by pleural and pericardial adhesions.

4. On the other hand, patients with uncomplicated regurgitant lesions, or arteriosclerosis with or without myocardial changes, may endure low atmospheric pressure without injury.

THE QUESTION OF GRUELS IN THE FEEDING OF INFANTS.

This practical question is discussed by CHAPIN in the *Medical Record* of August 5, 1899. He believes that besides attenuating the casein, the addition of gruels to cow's milk increases the nutritive value of the food. This is of great service in that class of cases in which bottle-fed babies show stationary or losing weight. The food for such infants may be properly prepared as far as percentages are concerned, and yet they do not thrive. This is especially seen in institution

babies. A proper addition of gruels to milk will not infrequently check wasting. The large proportion of lactose, a carbohydrate, in woman's milk shows the desirability of this food principle to the growing baby. The rapid production and easy dissipation of animal heat in the very young, with active tissue metabolism; indicate the call for some of the carbohydrate series.

Various observers have called attention to the favorable effect of carbohydrates in tending to prevent the putrefaction of proteids in the bowel. Such action is doubtless due to the formation of acids in the intestine, especially in the lower segments. The presence of free acids in the bowel prevents the growth of those intestinal bacteria that thrive in an alkaline medium.

While proper theorizing is desirable in the practice of medicine, the ultimate and final decision upon any therapeutic question must rest upon clinical experience. The writer has tried all kinds of infant feeding with that hardest class of cases, bottle-fed babies in hospital and dispensary practice. By adding gruels to the milk, the best results are obtained with these babies. The theory is that the cereal will help attenuate the curd of cow's milk and aid in the nourishment of the baby; in practice, the infant is not so apt to vomit thick curds, and the tendency to a stationary or losing weight is often lessened. Jacobi, with his long clinical experience, while recognizing and utilizing all the advances in infant feeding, maintains that the use of decoctions of the cereals is of the greatest value as an addition to cow's milk. He finds that even very young infants thrive better when cow's milk is diluted with gruels than when a mere sugar solution is added. In Germany, Heubner, of Berlin, comes to the same conclusions from a wide clinical experience.

The common objection advanced against this method of feeding is that a nursling should not be given starchy food in any form, as its digestive powers cannot cope with this food principle.

While large quantities of starch should be withheld in infancy, even the youngest baby can tolerate and digest a small and proper amount. According to Hammarsten, ptyalin, or salivary diastase, the amylolytic ferment of the saliva, occurs in new-born infants. He also states that pancreatic diastase, which, according to Korowin and Zweifel, is not found in new-born infants and does not appear until more than one month after birth, seems, although not identical with ptyalin, to be nearly related to it. Hence a certain amount of starch can be digested by the newly-born and very young infant.

AN EXPERIMENTAL INVESTIGATION OF THE ACTION OF RED BONE-MARROW ON THE BLOOD IN ANEMIA.

As the result of an investigation made by FOWLER, and printed in the *Scottish Medical Journal* for September, 1899, he reaches the following conclusions:

(1) Subcutaneous injections of bone-marrow have no action on the red corpuscles or hemoglobin of a healthy animal. (2) When the red corpuscles and hemoglobin fall below their normal limits, injections of marrow produce a decided rise in both. This rise is well marked, sudden, and of short duration. (3) Along with the increase in the red corpuscles, there is no corresponding improvement in the form of the cells. (4) The active principle is present in an aqueous, but not in an alcoholic, extract of marrow; it is not precipitated by boiling, does not contain iron, and may possibly be a deutero-proteose.

RELATIVE TOXICITY OF COCAINE AND EUCAINE.

PECK places his conclusions as to this matter in the following words in an article in the *Journal of the American Medical Association* of September 9, 1899:

1. The action of cocaine is inconstant; one never knows whether the symptoms occasioned by like quantities of the drug, in animals or individuals, under like circumstances, will be similar or dissimilar.

2. The action of eucaine is constant. The symptoms occasioned by the use of like quanties in animals, under like circumstances, and so far as Dr. Peck's experiments have gone, in different individuals also, are the same.

3. The first action of cocaine on the heart is that of a depressant, and on the respiration it is that of a mild stimulant, the after-effects being, on the heart, that of a decided stimulant, and on the respiration that of a decided depressant.

4. The first action of eucaine on both the heart and respiration is that of a stimulant, the after-effects being those of a decided depressant.

5. Cocaine causes death in animals by paralyzing the muscles of the respiratory apparatus, the heart's action continuing in a feeble way for a brief period after breathing ceases.

6. Eucaine causes death in animals by paralyzing the muscles of the heart and of the respiratory apparatus, they ceasing to operate simultaneously.

7. Eucaine in toxic doses nearly always causes nausea and occasionally vomiting.

8. Cocaine is much less nauseating and scarcely ever causes vomiting.

9. Eucaine is decidedly a diuretic, causing renal discharge in a majority of instances in which a toxic dose is used.

10. Cocaine is not a diuretic to any appreciable extent, renal discharge having occurred in only one instance in connection with all Dr. Peck's experiments.

11. The pupil of the eye, in nearly all cases of cocaine poisoning, does not respond to light and is more or less bulging from its socket.

12. The pupil of the eye in most cases of eucaine poisoning does respond feebly to light, and rarely bulges from its socket.

13. The action of toxic doses of eucaine is more like that of a paralyzing, tetanoiding, convulsion-producing agent, than it is like an anesthetizing one, the plantar and cremasteric reflexes nearly always responding.

14. Toxic doses of cocaine cause general anesthesia in connection with the other symptoms in the majority of cases.

15. True tetanus of all striped muscles of the limbs, and Cheyne-Stokes breathing, nearly always occur with the use of cocaine, but seldom does either occur when eucaine is used.

16. Cocaine is at least three times more toxic than beta eucaine, and alpha eucaine is as toxic as cocaine.

17. Boiling does not destroy the efficacy of cocaine, but it does modify it; and boiling in no degree lessens the efficacy of eucaine.

THE TREATMENT OF TUBERCULOSIS.

LAWRENCE FLICK states his belief in the *Medical News* of September 2, 1899, that a great deal can be accomplished by drugs in the treatment of tuberculosis if the drugs are judiciously used. We have no specifics for tuberculosis and may never get any, but we have valuable adjuvants and are constantly adding new ones to the list. In Dr. Flick's experience he says he has found iodine the most valuable remedy at our command. He used it in the form of europhen, which he introduced by inunction. The following is the formula which he employs: Europhen, 1 drachm; oil of rose, 1 minim; oil of anise, 1 drachm; olive oil, 2½ ounces. Of this he has the patient rub from a teaspoonful to a tablespoonful into the armpits and into the inside of the thighs once or twice a day. Formerly he used iodoform in this way, but owing to its offensive odor he has discarded it in favor of europhen, which is even richer in iodine than iodoform. As the patient becomes more tolerant of iodine he sometimes reenforces the inunctions by giving the europhen by the mouth in addition. He has tested the value of this treatment for a long period to convince him that it is real and worthy of confidence. The treatment ought to be kept up for a long time, and even after all symptoms of the disease have disappeared.

The next most valuable drug in Dr. Flick's experience is creosote. This is of especial value in the more advanced stages of the disease. In all cases of tuberculosis which have advanced to the stage of breaking down he gives creosote in addition to europhen inunctions as a routine treatment. In order to get the full benefit of creosote large doses should be given. He begins with one drop and increases the dose gradually until the patient takes from forty to fifty drops three times a day. The best vehicle which he has found for administering the drug is hot water. As he increases the dose of creosote he increases the amount of hot water, and in this way his patients find themselves able to take large doses of the drug without inconvenience. The maximum dose is usually taken in a pint of water. As a rule he orders the creosote taken before meals, and is under the impression that it stimulates the appetite. He uses pure beechwood creosote in preference to other preparations because it is less expensive.

The third place in the order of importance in the value of drugs for the treatment of tuberculosis he unhesitatingly assigns to strychnine. In what way it acts he does not know, but if given in proper doses it helps to increase weight and improves the heart action. As a rule it ought to be given in large doses, but all patients do not bear large doses well. The dose should be changed from time to time. Other drugs that are useful in properly selected cases are arsenic, digitalis, mercury, both in the form of calomel and corrosive sublimate, belladonna, muriate of ammonia, aromatic spirits of ammonia, nitroglycerin, the mineral acids, and the vegetable tonics. Most of these drugs may be used to advantage for build-

ing up nutrition. Nitroglycerin is useful for checking hemorrhage, ammonia for stimulating the secretions of the bronchial glands.

ERYSIPELAS AND ALLIED DISEASES.

The *Edinburgh Medical Journal* for August, 1899, contains an article by MACLACHLAN in which he suggests the following line of treatment. He thinks that in uncomplicated cases of cutaneous erysipelas no special treatment is required beyond supporting the patient, favoring elimination, and using antiseptics locally to the affected parts. As a further precaution, the air of the sick-room or ward might be charged with vapor containing eucalyptus oil, which proved effective in checking the spread of the disease in an asylum alluded to by Dr. Maclachlan. These preventive measures can scarcely be dispensed with, considering the risks tiny scratches on the body expose one to; and further, we cannot estimate beforehand the inherited tendencies that exist in some individuals to this disease.

Many drugs have been counted as specifics, particularly large doses of tincture of chloride of iron, but Dr. Maclachlan has not been able in his own experience to support Bell and others who have taught this doctrine. He has given in several cases as much as thirty minims every hour, in the hope of arresting the disease, but has been unable to satisfy himself that the medicine exerted any peculiarly curative influence. Whatever tends to contract the capillaries of an inflamed area is likely to do good in diminishing the exudation, and so the tension and pain of the part. Iron is likely to do all this; but there its influence stops. Moreover, it would not be difficult to bring a body of evidence in favor of any drug in a disease that spontaneously subsides.

Not a few drugs, while not markedly affecting the pathogenic cause of a disease, do good by influencing the morbid products of the disease, either by causing or promoting their absorption or checking their accumulation, and, so to speak, relieving the mechanical disabilities of the affected part. Under this head the author places aconite (praised by Ringer), purgatives, diaphoretics, etc., all of which may be more or less useful, when properly used, although in no sense curative.

With regard to surgical cellulitis and its congeners, Dr. Maclachlan says he supposes little doubt exists as to there being no specific drug. In such circumstances the best treatment is to conserve the vital processes, an expression used by Gull in regard to any treatment. This object is achieved sometimes by what seems to be diametrically opposed lines of treatment. There is the patient and his disease. What seems best for the patient may not be best for that part of him which is the seat of morbid action, and *vice versa.* When in doubt, one must treat the patient, and take the cue from the general state of the body and not from the local affected part.

The surgical forms of the disease, including puerperal peritonitis, and, for that part of it, even septic pleurisy, he has been in the habit of treating in the following way:

Dietetic.—He relies chiefly on brandy, eggs, and milk, with good beef tea by way of a change. The brandy he uses as a food and a dietetic stimulant, giving one or two teaspoonfuls hourly in bad cases, with about a wineglassful of milk, or egg and milk whipped, with some sugar added, or a corresponding amount of beef tea.

It is of great importance to regulate the quantity of food given to a patient according to the powers of the stomach. A patient may take a wineglassful of liquid food hourly, whose stomach could not tolerate a cupful every two hours. Sometimes it may be necessary to give only a tablespoonful or even a teaspoonful at a time, frequently repeated. If the stomach is very irritable, and vomiting sets in, he withholds food by the mouth for several hours, giving the patient a teaspoonful occasionally of weak brandy and water (a teaspoonful to the wineglassful), and applies mustard poultices to the epigastric region. This generally succeeds. When vomiting stops food may be cautiously given.

In regard to the question of stimulants in acute disease, Dr. Maclachlan says he has never been able to disabuse his mind of the idea that it is possible to poison a sick person, as well as a healthy individual, by the indiscriminate use of alcohol. It is true that some diseases—*e.g.*, diphtheria—would seem to make a sick person more tolerant of alcohol. Nevertheless, he prefers to give ammonia when a pure stimulant is required. He looks upon repeated narcotic doses of alcohol as dangerous in critical illnesses, as tending to paralyze the higher centers, and to unhinge the nervous mechanism generally.

Sir William Gairdner has, for the last thirty or forty years, championed the cause of great moderation in the use of stimulants in acute disease. His teaching and his experience

may be said to have given the death-blow to that of Todd, which consisted in pouring in alcoholic stimulants in proportion to the weakness of the patient. Indeed, Gairdner's teaching practically amounts to this, namely, that alcohol should be used in acute disease on the same lines as in comparative health, "to quicken and develop the appetite for real food and the power of assimilating it," and that stimulants should not be given except with food, unless for the purpose (as a drug) of procuring sleep. Gairdner regards alcohol—even if hypothetically a food—a bad food in acute disease. And his successful record of the treatment of cases of typhus fever was achieved without employing alcohol at all, in the vast majority of his cases. Dr. Maclachlan agrees entirely with Sir William Gairdner's teaching, except that he regards alcohol as a food in acute disease, as well as a dietetic stimulant; only it is a food that must be given in small quantities and in a diluted state, to avoid its exhausting stimulating effects, and imperfect assimilation.

A very sick patient is practically a starving one, and very large doses of alcohol cannot be a fictitious danger. During the night the patient should be fed twice or thrice at least. Little and often is Dr. Maclachlan's motto, both in regard to food and drink, in severe illnesses.

Medicinal.—In the diseases under consideration, there are three drugs he pins his faith to, namely, opium, digitalis, and quinine, given in his opinion in the order of therapeutic merit. He prefers to give them in pill form. The dose of the several ingredients may be altered to suit the exigencies of the case. He generally gives one grain of opium, one grain of quinine, and one-fourth grain of digitalis, every two, three, or four hours, according to circumstances. The combination of these three drugs in pill form generally goes by the name of Niemeyer's pill. It is most valuable in supporting the circulation at the dangerous period of an illness, preventing death from heart failure—the common cause of death in acute disease. Dr. Maclachlan attributes the successful issue of most of the cases narrated above as chiefly due to this pill.

IMPROMPTU POST-MORTEM CÆSARIAN SECTION.

Attention has recently been called by COLLE (*Echo Médical du Nord*, June 25, 1899) to the grave legal responsibility assumed by a physician who undertakes to save an unborn infant's life by performing Cæsarian section upon a recently dead mother without, as would usually be the case, the permission of the husband or relatives of the deceased. It seems that Colle was calling upon a patient whose confinement was expected shortly, when she suddenly fell dead in his presence. Hastily securing instruments from his house, he delivered within fifteen minutes a living child by abdominal section. Naturally rumors began to circulate that the mother was not dead, and the possible legal risk the doctor had assumed so impressed itself upon him that he later advocated the delivery of the child in similar cases by accouchement forcé.

So far as we know, there has been no malpractice suit brought in any similar case, which is rather strange; but the suggestion of Colle is well taken.

Some years ago the writer had a case of sudden death of the mother in which he delivered the child by accouchement forcé, when the thought of what might have been had he done a Cæsarian section was very deeply impressed upon him. The patient, an Irish primipara in the first stage of labor, died suddenly while attended by an assistant. On arrival, twenty minutes after death, the writer found the main room of the tenement house occupied by some sixty highly excited friends of the deceased, and the young doctor suffering from cold sweats faithfully standing by the patient in the adjoining room.

Finding the mother's heart silent, and quickly realizing the impossibility of securing the consent of any of the assembled convocation in time to render Cæsarian section feasible, and that it would be worth one's life to so operate without consent, we promptly shut the door, took a pocket penknife, and slit the cervix thoroughly and delivered a still-born child. The time required to effect delivery was not more than two to three minutes. There was no external wound, and so there was no suggestion of fault-finding to the crowd of emotional friends, many of whom would have been only too glad to vent their feelings against a doctor rather than blind fate. Delivery through the vagina instead of the abdominal wall can be accomplished with the forceps or by version in almost as short a time as by abdominal section, except where the pelvis might be contracted.

The chief consideration in this subject is not, however, the safest way to do the operation—safest for the physician—but whether it should ever be done until the death of the mother is a certainty.

Dohrn has made a special study of this question (*Volkmann's Samml.*, No. 188), and cites several cases in which maternal death was apparent and Cæsarian section performed. The first was that of a living child, extracted seven hours after supposed death (it being held that the mother must have been alive); a second referred to resuscitation of a woman after apparent death from hemorrhage; while a third, the most significant of all, was an apparent death from meningitis, where after three-quarters of an hour of vain effort to resuscitate the woman, the attendant was about to perform the Cæsarian operation when the patient came to life.

Statistics kept for many years in Würtemberg show that out of 100,000 confinements, the Cæsarian section had been performed, post-mortem, on thirty-six women.

Kendall (*Virginia Medical Semi-Monthly*, Jan. 27, 1898) reported two cases of post-mortem Cæsarian section following rupture of the uterus, with one child living.

Considering the comparatively small number of children saved out of the number delivered by post-mortem Cæsarian section, and the frightful character of the situation for both mother and physician, where the operation might be mistakenly performed upon a living woman, it is certainly best for the physician to delay operation while any doubt remains of the mother's demise. Further, it would seem best to select the vaginal route for delivery whenever possible.—*Obstetrics*, August, 1899.

THE TREATMENT OF ECLAMPSIA.

In *Obstetrics* for August, 1899, De Lee gives the following directions for the treatment of this formidable condition:

1. Protect the patient from the vehemence of the convulsion. Absolute quiet in bed, surrounded with pillows; remove false teeth; have a gag near at hand to put between the teeth to avoid injury to the tongue. A clothes-pin covered with a soft cloth and placed between the jaws so as to develop the elasticity of its arms answers very well. The room should be darkened, all noises rigorously excluded, no jarring of the bed, slamming of doors, talking, moving about, etc., and the patient should be disturbed not more than is absolutely essential. These are not minor points, but are important, as convulsions are caused by the slightest external impression or irritation.

2. Narcotize the woman. The arguments as to utility and safety of this procedure are not yet closed, but they seem to be tending toward the recognition of its value in the majority of cases. Give one-quarter of a grain of morphine hypodermically every thirty minutes until three-fourths of a grain is taken. Give forty-five grains of chloral per rectum, and repeat in two hours, if necessary. Chloroform is now recommended only when one convulsion follows the other in rapid succession. Under the above treatment this will not occur, so the writer desires the use of chloroform restricted to anesthesia for operative purposes.

3. Shall bleeding be practiced? The pendulum is swinging back. In cases where the convulsions occur in spite of the above medication, where the pulse is strong and full, face flushed or even cyanotic, where, in short, the case may be called sthenic or apoplectic, bleeding will do good. It is not necessary in all cases, but when it is, it should be practiced until there is a perceptible effect on the pulse. In cases where the pulse is weak and running, or absent, where cyanosis and pallor are combined, where the case is of the asthenic variety, the utility of bleeding is doubtful. Stimulation is indicated—strychnine, nitroglycerin, camphorated oil. Where the right heart is engorged, and pulmonary edema threatens, bleeding, together with powerful cardiac stimulation, may tide the patient over. The pulse here is not the guide. In general it may be said regarding venesection in eclampsia that it has a place in the treatment, and an important place, but that careful discrimination should be used as to the cases in which it is practiced, the amount of blood withdrawn, the period at which it is drawn, and in making deductions regarding effect.

4. Aid elimination. The means given previously may be employed, adapting them to the conditions present. If the labor is in active progress, little can be done with hot packs, nor is it desirable to have the field of operation flooded with fluid feces, the result of croton oil. Diuretics are too slow during active eclampsia. An excellent remedy, applicable to all stages of labor, is the subcutaneous injection of normal saline solution. The effect on the kidneys is remarkable. It has been used in combination with venesec-

tion to supply the place of the blood withdrawn, and is sometimes called "washing the blood," theoretically a good procedure. When labor is not in progress, and during the puerperium, all the efficient eliminatory measures may and should be employed.

Treatment During Pregnancy.—In a given case of eclampsia, when labor has not yet begun, try to tide the patient over the present danger by the means just given, and induce labor after the tendency to convulsions is past, or wait till labor comes on naturally. In the modern trend toward operative measures, those successful cases, not a few, where expectancy and medication lead to a favorable termination are being ignored.

Theoretically, if one should induce labor when eclampsia is threatening, one should end the pregnancy when it has broken out. Clinically, however, one can often overcome the convulsions, the fetus may die and be expelled, and, what is not so rare that it may be neglected, the patient may go on to term, and have a living child. If the convulsions are at all severe, labor usually comes on without much delay.

The dangers of injury and shock in the rapid dilatation and emptying of the uterus, and the many irritations to the already overwrought nervous system made by it, may more than outweigh the advantages of the immediate termination of pregnancy. Should medicinal treatment have no effect, the convulsions getting more frequent, longer, harder, or the pulse getting more frequent with a rising temperature, induce labor. Puncture the bag of waters first. In a third of the cases the convulsions cease, in another third they become less strong, but in the rest they do not improve. Labor usually comes on at once, especially if the fits are violent. They stimulate the uterus, and labor pains are often strong. If necessary to hasten the labor, dilate the cervix with Barnes's bag or the colpeurynter.

Treatment During Labor.—All authors are agreed that during labor one should terminate the process as soon as possible. The greatest differences exist, however, in regard to the amount of force to be employed. Accouchement forcé should almost never be used. By this is meant the rapid dilatation of the cervix, incising it if necessary, and the immediate extraction of the child.

Dr. De Lee says he cannot agree with those who say that it is possible safely to stretch, tear, and cut the cervix open and extract the fetus in thirty minutes to an hour. Unless the upper part of the cervix is effaced—that is, drawn up into the body of the uterus (carrying the circular artery with it)—the dangers of rapid dilatation by any of the means employed are great. Laceration of the cervix, even to the peritoneal cavity, hemorrhage even fatal, later sepsis, have occurred often enough to warn against this procedure. When the cervix is effaced, and the os begins to dilate, the case has an entirely different aspect; then the dilatation by the hand or incision is comparatively without danger. It must never be forgotten that stretching cannot replace the natural process of effacement and dilatation, and that it is therefore in the highest degree desirable, in cases where operative delivery is to be made, to wait until the cervix is thinned out—that is, shortened—and the dilatation at least beginning before it is attempted. The circular artery is then out of reach, and the incisions, as given by Dührssen, or the lacerations, are not so dangerous.

The only means to produce this effacement of the cervix is the uterine action. Stretching from below or pulling rubber bags through will not do it, except insomuch as they produce uterine contractions. In cases, therefore, where rapid delivery is indicated, the writer uses Barnes's bags and the colpeurynter to dilate the cervix, as they at the same time evoke pains and hasten the shortening of the cervix. Manual dilatation of the cervix is accomplished by a method similar to that described by Edgar, of New York, which the writer has used for five years with success, varied by a few failures. The cervix will sometimes tear under the manipulations so that recourse must be had to incisions, or it will not give way to any justifiable force, when the scissors may again be necessary.

The delivery is best accomplished by the forceps. Version is undesirable in eclampsia. If the child is dead, by all means perform craniotomy.

If there are perineal or vaginal tears, repair them; if cervical, leave them alone, unless hemorrhage gives the indication. The delivery of the placenta is as usual. If contraction and retraction of the uterus are good, postpartum hemorrhage is not to be feared. Do not tampon the uterus if at all avoidable.

The child is not seldom asphyxiated; it may be narcotized by the drugs given the mother, and it may have convulsions similar to those of the mother.

It is well to remember that in eclampsia

labor is usually rapid, and the patient being unconscious, the baby may be born unexpectedly under the bedclothes. It is well to leave the case to nature if the labor is progressing rapidly, if the convulsions are not too severe, if the color of the patient is not cyanotic, if the pulse is good, the fever not above 102°, and there be no signs of edema pulmonum.

As soon, however, as the cervix is completely dilated there is usually no need to wait longer, and the delivery may be completed under chloroform. Only in the gravest emergency should forcible means to empty the uterus be employed. Cæsarian section has no place in the treatment of eclampsia unless the woman is about to die and the child is alive.

From the above it may be seen that Dr. De Lee leans toward an expectant plan of treatment of eclampsia; but it will be seen also that under proper indications on the part of the mother, active, decisive, operative measures are advised.

Treatment During the Puerperium.—Those measures given above—that is, those appropriate to all cases—come into play here to the fullest extent. The eliminators must be stimulated to the full safe limit. Narcotics must be used more sparingly now, unless the convulsions are very violent, as it seems that they increase and prolong the coma, and lock up the secretions. During the labor where the irritation from the genitals is being kept up, narcotics are necessary, and we must take their bad effects with the good. No drug is an unalloyed good.

Saline solution may be given in large doses hypodermically, and oxygen, which is supposed to aid elimination by the lungs. Dr. De Lee has used oxygen in only one case—puerperal eclampsia—but there was no effect, not even on the cyanosis.

Veratrum viride has been much extolled as a specific for eclampsia, and it did for a time take that part of the place of bleeding that chloroform did not usurp. Now bleeding is taking its place again to the disuse of chloroform, and veratrum is being less used than it was. It is said that by this drug the pulse may be kept at 60, and then no convulsions can occur. Dr. De Lee says he has had but little recourse to this drug, but in one case the fits recurred even while it was being pushed to its physiological effect. It may be used with other remedies.

In general the treatment of this grave accident is much the same as the treatment of any other disease—not one drug or course of procedure for all cases, but a proper individualization of the cases and a careful application of the method suited to each.

QUININE IN MALARIAL HEMOGLOBINURIA.

The *Memphis Lancet* for September, 1899, a journal published in a part of the country in which malarial hematuria is common, replies editorially to an advocate of the use of quinine as follows:

"The *Journal of the American Medical Association* bemoans the fact that it still reads the 'assertion' that the administration of quinine in malarial hemoglobinuria aggravates the 'symptom,' and then asserts that very few practitioners in the malarial districts believe that quinine will produce this condition.

"The *Journal*, by rules of logic which are naive, to say the least, says: 'Why the hemoglobinuria of malarial origin has been singled out among all the other varieties and stated to be increased by the use of quinine is not clear. Thus we have (1) paroxysmal hemoglobinuria, and (2) toxic hemoglobinuria, including that due to chlorate of potash, carbolic acid, naphthol, carbon dioxide, and the poisons of infectious fevers, etc.' It says further: 'The bright-red urine observed is not always a hematuria—in fact, a hematuria is the rare exception, for hemorrhages, of whatever nature, are uncommon in all varieties of malaria.'

"It is very easy to sit on the editorial tripod on the shore of Lake Michigan and, in the above *ipse dixit* style, dictate to experienced men how they should treat a 'symptom,' of which the editor shows his ignorance by calling it such. Malarial hematuria (one term is as good as another, since both are incorrect) is a pathologic entity, with a symptom-complex all its own. To place it in a category with other conditions which also have one of the symptoms does not strike the ignorant swamp doctor as good logic. Now, to begin with, the form of malarial fever accompanied by bright-red urine we denominate hemorrhagic malarial fever. There is a distinct hemorrhage, and it is most effectually treated with quinine, and rationally so, because the malaria is in an active form and requires the classic remedy for its removal. Not so in the other condition; here the bulk of the color is due to methemoglobin, the urine is black or the color of port wine, and, the *Journal* to the

contrary notwithstanding, there is always some blood present. In this condition the malarial organism is either already absent or is rapidly disappearing from the blood.

"The symptoms of icteric methemoglobinuria of malarial origin are about as follows: After a variable history of previous intermittents, treated with quinine, the patient is suddenly taken with a chill, lasting from a few minutes to an hour, the thermometer indicating from 101° to 106°, usually about 103°. This is followed by no increase of temperature and absolutely no sweating. After a short time, from a few minutes to an hour, the patient will pass with great vesical tenesmus from 30 to 300 cubic centimeters of dark-colored urine; if the quantity is small it is inky black, and the prognosis is bad. The urine is highly albuminous, and contains a variable number of blood disks, mostly bleached out; the specific gravity is from 1025 to 1040. If the patient is still under the influence of quinine, a second or third rigor may appear, without any periodicity, and each additional dose, with mathematical precision, will bring on a paroxysm, and each paroxysm is followed by darker urine, but if no more rigors appear it will gradually clear up. The patient has an anxious face, rapid, sighing respiration, a rapid, feeble pulse, and more or less nausea. In from six to ten hours after the onset active vomiting appears, which is projectile, the skin becomes markedly jaundiced (darker than obstructive jaundice), the bowels are obstinately constipated, and the shock becomes more marked. The blood in the beginning may contain from three to four million red cells, some plasmodia, and there may be seen some phagocytosis. In twelve hours the count may be one and a half million, and the plasmodia may have disappeared; even at the autopsy they may be absent in the internal organs.

"In favorable cases, after sharp elimination, all the symptoms gradually disappear; the stools, which were at first black and tarry, become lighter and of a golden-yellow color; the urine is voided frequently, becomes more dilute, and contains epithelia and all kinds of casts. In fatal cases the rigors continue, the patient becomes delirious, suppression sets in, and he dies with 'uremia.' Or there may be amelioration of symptoms, but with suppression, the patient will feel well and will not believe that he is certainly doomed, and may live eight days after complete suppression. In some few rare cases the plasmodia may persist and give rise to a febrile movement; in such we use methylene blue, some preferring sodium thiosulphate.

"Now, the writer will tell the learned editor of the *Journal* a secret: he has never seen a case treated with quinine recover; on the other hand, by the eliminative treatment the majority of cases make a rapid recovery. This is no editorial bombast, but can be attested by thousands of swamp inhabitants. If a malarial infection is promptly and scientifically treated with quinine this peculiar disorder can be positively prevented, but the dilatory and improper use of it in the face of a malarial cachexia will certainly bring on an attack of methemoglobinuria in a susceptible individual.

"The writer has seen several cases of quinine methemoglobinuria; it has no existence apart from malarial cachexia. The editor of the *Journal* can find any number of such cases in the Mississippi valley, providing he has money enough to induce a subject to take a dose of quinine; they generally take arsenic. It seems to be a chronic condition. We admit that we do not understand it, but know, however, that in chronic malaria the hemoglobin percentage falls after quinine is exhibited, just like the pulmonary effect of a mercurial inunction in secondary syphilis."

ACOIN, A NEW LOCAL ANESTHETIC.

R. L. RANDOLPH, of Baltimore, writes as follows of this new drug in the *Ophthalmic Record* for August, 1899. He begins by reminding us that in the January number of the *Therapeutische Monatshefte* there is an account of the discovery of a new local anesthetic — acoin — by Trolldenier, of Dresden. Trolldenier's first experiments to show the toxic properties of this product were made on dogs. His results demonstrated that acoin was much less poisonous than cocaine.

The anesthetic properties were tested on the rabbit's eye. At first the powder was tried, and then concentrated solutions; but in these forms it proved too irritating, though it produced anesthesia which lasted "several days." With weak solutions these results were obtained: 1:10,000 produced anesthesia lasting for fifteen minutes; 1:4000 produced anesthesia lasting for thirty minutes; 1:2000 produced anesthesia lasting for sixty minutes; 1:1000 produced anesthesia lasting for 40–80 minutes; 1:40 produced anesthesia lasting for over a day.

Solutions of 1:40 were irritating, though

they produced no injury. It was found that the solutions were but slightly influenced by light, and when exposed to the air from three to eleven days were shown to be sterile.

Dr. Randolph says so far as he knows acoin has not yet been tested upon the human eye. His first experiments were made with a solution of 1:3000. With this solution he has extracted fifteen foreign bodies from the cornea. It was noticeable, however, that in those cases where the foreign body had been embedded for some time and where there was congestion, repeated instillations were necessary to make the removal possible, and even then the anesthesia did not seem as complete as with either cocaine or holocaine.

Where there was no congestion the removal of the foreign body was painless. One pterygium was removed, and the author noticed no difference in the anesthesia from that produced by either cocaine or holocaine. Two tarsal tumors were opened and curetted, and the operations were about as painful as when performed under cocaine or under holocaine. He has had no opportunity of making the corneal incision, but says he should think that acoin would produce satisfactory anesthesia for such an operation so long as the eye was not in a condition of irritation. The stinging following the instillation of a drop of acoin is greater than that after cocaine. This was shown conclusively. A drop of acoin was dropped into one eye and a drop of cocaine into the other, and in every case the acoin was more painful. In this respect it resembles holocaine. It took quite as long to produce satisfactory anesthesia as it does with cocaine, and longer than it does with holocaine. In this respect his results do not agree with those of Trolldenier and Hesse, who call attention to the rapidity of its action. It will be remembered, however, that the experiments of these observers were made on rabbits, and from the well known behavior of these animals on the operating table we would not be inclined to think that their sensitive nerves were very highly developed.

Acoin is a white powder, quite soluble in water in the proportion used in the author's experiments—*i.e.*, 4½ grains to the ounce of water. It is derived from guanin, which is found in almost all animal and vegetable cellular tissue. Acoin is related to caffeine and theobromine.

Randolph concludes that:

1. Acoin in solutions of 1:100 and 1:300 produces satisfactory anesthesia in an unirritated eye in about the same length of time as cocaine.

2. In more than one case where the eye was congested repeated instillations of acoin were inadequate to produce satisfactory anesthesia.

3. Inspection of the cornea with a high-power lens failed to show any defects in the epithelium after its use.

4. Acoin has no effect upon accommodation.

5. It has no effect upon the size of the pupil.

6. It does not increase intra-ocular tension.

7. Several experiments showed that the staphylococcus pyogenes albus did not grow in agar which contained acoin in the proportion used in the clinic, and furthermore, that exposure of this organism to the action of acoin for twenty-four hours was followed by the death of the organism. This would look as though acoin were not only an inhibitor of the growth of the staphylococcus albus, but that it also killed this organism after a certain length of time.

It is of course evident that conclusions drawn from this limited experience with acoin may have to undergo more or less modification with further trial.

ON THE CONSERVATIVE TREATMENT OF TUBERCULAR JOINTS AND COLD ABSCESSES, AS PRACTICED BY MIKULICZ OF BRESLAU—1890 TO 1896.

CATHCART (*Scottish Medical and Surgical Journal*, March, 1899) states that for some years past, in addition to fixation and rest, two very simple means of treating such cases have been in use—*i.e.*, the injection of iodoform, and the artificial production of venous congestion known as Bier's treatment. Allusions have been made to each of these in the medical papers from time to time, but as so many other methods have also been advocated we are often at a loss to know which of them may be expected to take a permanent place among therapeutic measures. In coming to a decision in such questions we naturally value the opinion of men of high standing and wide experience, who have had ample opportunity of watching such results. Professor Mikulicz is one of these. He has advocated the use of iodoform since 1882, and is so well known as a surgeon that we may be sure that his preference for non-

operative measures is certainly not due to any want of ability and readiness to operate, if operation would serve the purpose as well.

Mikulicz uses only a ten-per-cent emulsion of iodoform in glycerin. One great advantage of glycerin over other agents is that it is a strong antiseptic. It will destroy all the known pus-forming organisms, and as iodoform outside of the body is practically an inert powder, this saves much trouble and anxiety.

With regard to the dangers of the iodoform-glycerin treatment, we are told that all authors are agreed that a careful attention to the proper dosage makes it quite possible to avoid the danger of poisoning. The symptoms that have been described of an excessive dose of iodoform are severe mental perturbation, raised temperature, rapid pulse, paleness of the face, fixed eyes, spasmodic movement, albumin and strong iodoform reaction in the urine, and the latter also in the saliva. The test consists in adding a little starch paste with sulphuric and nitric acid to the suspected fluid; the iodine is set free and turns the starch blue.

But glycerin itself has been shown capable of producing toxic symptoms. In slight cases there is a rise of temperature within twenty-four hours of the injection to about 38.5° C., with a pulse of about 115; these symptoms generally subside again in twenty-four hours. For a few hours blood pigment is found in the urine, but no kidney elements, nor blood-corpuscles. Corresponding to the blood pigment there are traces of albumin. In more severe cases the temperature often reaches 39° C.; urine is of a deep brown color, and has a considerable sediment containing hyaline and granular tube casts, and a reddish-brown detritus of amorphous lime salts, but no blood-corpuscles. In a fatal case the collapse prevented the temperature from rising, but the pulse went up to 160; there was also sickness, vomiting, great thirst, restlessness, stupor ending in coma. Urine decreased in quantity, and of a dark brown color. Death on the third day. At the post-mortem examination a high degree of acute parenchymatous nephritis was the chief pathological change found. This was a case of hip joint disease with abscesses in a child aged four years. The disease had been treated by Billroth's method, and from 60 to 65 cubic centimeters of iodoform-glycerin had been used.

Outside the body iodoform is practically inert, but when injected into a chronic abscess or other tubercular area it attacks the bacilli apparently after having been decomposed. Its action on the tissues is to increase the development of connective tissue. The clinical value of iodoform in tuberculosis is undoubted, and that for our present purpose is sufficient.

Glycerin is destructive to bacteria, and although dangerous to the patient if injected in too large a quantity, it may be safely used if the proper dosage is respected.

For puncture and injection of abscesses a medium-sized trocar is needed, which fits tightly into the point of a syringe. In case the trocar should become blocked with curdy matter, a sound should be at hand to clear the bore.

For parenchymatous injection and for small abscesses a metal-mounted glass syringe is recommended, holding about fifteen cubic centimeters. It should have rings on the piston and barrel to enable pressure to be made with greater ease. The sharp-pointed cannulæ should be of different lengths, and should vary from 0.9 to 1.5 millimeters in diameter. They should screw on to the syringe to prevent their starting out when pressure is being exerted. Before use the cannulæ should be boiled and the syringe soaked in carbolic solution for several hours.

The quantity of the fluid injected depends on circumstances. For parenchymatous injection into the substance of pulpy synovial membrane, from four cubic centimeters in young children to thirty cubic centimeters in adults may be used, but it is better to begin with small doses and watch the results. For cold abscesses larger quantities may be employed, because the absorption from the abscess walls, which are protected by granulations, is much less than from fresh surfaces. As much as 100 cubic centimeters may be used for adults, and proportionately less for children. If the granulation wall of the abscess has been removed by operation, a much less quantity must be used. On the withdrawal of the trocar a pad of gauze is fixed in position with crossing pieces of sticking-plaster, and over all compression is produced by overlapping turns of sticking-plaster. If the pus should be so thick that an incision is necessary, the wound is sewn up at once.

In the case of abscess an oblique puncture is considered advisable, and if the skin over the abscess should be thin and in danger of giving way, the puncture should be carried

through the sound skin at a little distance from the place where pointing has begun. When this is done the thin skin often recovers.

In parenchymatous injection, or when injecting undistended joints, it is more difficult to disseminate the iodoform than where simple abscesses are being dealt with. Tubercular joint cavities, too, are apt to be subdivided into separate compartments, and these have to be dealt with individually. The action of iodoform is confined to the part to which it is applied. Only a slight amount of dissemination occurs through the lymph stream, and that merely within a small radius from the place where it is injected.

Owing to the fact that the dissemination of iodoform is limited, the method of carrying out parenchymatous injection has to be adapted to meet this difficulty. The various parts of the joint have to be attacked in succession. The needle is plunged deeply in, and firm pressure is exerted upon the piston of the syringe till the point of the needle feels loose; it is then withdrawn a little, and the same is done again. Before taking out the needle it is thrust in a new direction, and the same procedure is adopted till the required quantity has been used. Next time another part of the joint is selected, and so on till the whole of the affected tissues has been overtaken. Even softened bones can be dealt with in the same way, but much greater pressure is required.

To provide for the swelling and tenderness that may be expected, when the lower limbs are affected weights are lightened, bandages loosened, and limbs previously free are steadied with sand-bags; until the reaction is over patients who were going about are kept in bed. Except where the pelvis or lower limbs are affected, however, confinement to bed is not thought necessary. Sequestra in bone are not to be taken as necessarily contraindicating a trial of iodoform injection. If the neighboring parts of bone can be infiltrated with the emulsion, the bacilli will be killed, and the sequestrum may be gradually absorbed.

The injections are made at intervals of from eight to fourteen days as a general rule; sometimes much longer, but never under five days. The length of the interval is regulated by the amount of reaction, which should always have completely subsided before the next injection is undertaken. Where simple spaces are being injected in joint cavities or abscesses, the interval is longer, because the drug is generally brought into contact with the whole surface at the first injection.

The fluid distention in an abscess or joint is increased by the injection for the first two or three days. After that it gradually subsides, and in favorable cases disappears in from four to six weeks. The abscess becomes a scar, and instead of the hydrops there is a thickening round the joint with more or less disturbance of its function. The final disappearance of the fluid may be hastened sometimes by the pressure of an elastic bandage. A second puncture may be made at the end of from four to six weeks, but if the fluid found in the cavity then contains iodoform, a further addition of the drug is not necessary. Many abscesses are cured by a single injection; seldom does it need to be repeated more than once. Where an abscess complicates pulpy degeneration the two forms of treatment are combined—*i.e.*, the abscess is injected at long intervals and the synovial thickening receives parenchymatous injection at shorter intervals.

Billroth's method previously alluded to has been employed in certain cases by Mikulicz. Tubercular foci and granulation tissue are scraped away, and bleeding stopped by plugging with iodoform gauze or ligature of vessels when necessary. The wound is then closed by sutures, with the exception of a narrow aperture left for the removal of the gauze and for the subsequent injection of the iodoform and glycerin; it being always remembered that the absorption is much greater from fresh surfaces than it would otherwise be.

Cases coming for treatment with fistulæ already in existence are not so easy nor so satisfactory to deal with. Sometimes sinuses may be scraped out and dealt with by Billroth's method. Where the whole sinus cannot be reached, however, this plan should not be employed, and we must trust to injection of the emulsion under pressure. A conical nozzle is pushed into the fistulous opening, and if too small to block it, is supported by a plug of gauze; the fluid is then forced firmly along the sinus and is retained, under pressure by the finger or a plug of gauze, for about ten minutes after the nozzle is withdrawn. After that a plug of gauze is fixed over the opening with sticking-plaster, and compression is maintained with an elastic bandage for several hours. Such injections may be repeated twice or thrice a week, depending upon the amount of reaction.

So far as the pulpy membrane and the tubercular bone are concerned, the only rule is to inject into the part which seems to be diseased; but the cavities of the different joints are best reached from the points which Krause showed after careful investigation to be most suitable.

For the wrist-joint points should be chosen just below the styloid processes of the radius and ulna.

For the elbow, the needle should enter just over the head of the radius in front. At the back the cavity of the joint may be reached from the radial side, the thickened capsule on either side of the olecranon.

For the shoulder Krause thought it better to work laterally from the coracoid process or from the spine of the scapula where it joins the acromion.

The ankle-joint is accessible from the apices of the malleoli. The needle is passed at first directly inwards, and its point is afterwards turned up. The thickened capsule may be felt on either side of the tendo Achillis behind, also in front, and is everywhere accessible.

The tarsal bones and joints can be most easily reached from the dorsum and sides of the foot.

The knee can be easily entered by a puncture on either side of, or just above, the patella. The subcrural bursa should not be omitted in tubercular synovitis. The needle to reach it should be passed through the tendon of the quadriceps.

For the hip-joint, either Krause's or Bünger's points may be used. The former directs the patient to be laid on his back and the thigh extended, adducted, and slightly rotated inwards; a long needle is then entered above the great trochanter at right angles to the axis of the thigh, and is pushed in until it strikes the head of the femur or the neck just below the head; when guided upwards over the head it enters the joint. Bünger directs the injection to be made as follows: From the place where the femoral artery crosses the ramus of the pubes a line is drawn to the tip of the trochanter, and the needle is entered at the point where this line crosses the inner border of the sartorious muscle; it is then carried directly back into the joint. Both methods have been used at Breslau to reach the cavity of the joint, and also to attack the swollen synovial membrane. The back of the joint is accessible from the posterior border of the great trochanter.

Psoas abscesses are punctured as soon as they come sufficiently near the surface to allow of their being reached without fear of passing through the peritoneum. Otherwise there would be a risk of causing tubercular peritonitis.

Since 1892, when Bier brought this method before the German Surgical Congress, it has been extensively used in Kiel and elsewhere, and it has been employed at Breslau since the beginning of 1893 in combination with the application of iodoform as already described. The object is to produce venous congestion. It is not clear how the beneficial change is brought about, but that such does take place there seems to be no room for doubt. The limb is first bandaged firmly to within a few inches of the joint. Above the affected joint a rubber tube or bandage is then wound sufficiently tightly to produce a distinct bluish-red discoloration of the skin of the unsupported parts below.

In some patients the full amount of congestion can be easily borne from the first, in others it must be begun gradually and increased as the patient gets used to it. The congestion may be maintained for from fourteen to eighteen hours out of the twenty-four, and the remaining time may be employed to get rid of the edema by the use of elastic pressure applied over the joint itself. As the condition improves, the length of time during which the congestion is kept up may be diminished by degrees. To prevent ill effects from the pressure of the elastic bandage, its position should be frequently altered and an ordinary bandage should be applied between the skin and the rubber.

In the parts of the limbs where the venous congestion is applicable—*i.e.*, below the hip or shoulder—this method and fixation (or attempted improvement of the position of the joint) constitute the first stage of the treatment; and this is continued for from eight to fourteen days. Then from six to ten cubic centimeters of the emulsion for children and from fifteen to thirty cubic centimeters for adults is injected into and round about the joint. Abscesses, however, are injected straight away if the diagnosis is clear and their position suitable.

The intervals at which the injections are to be repeated have already been mentioned. During the longer intervals the patient may be sent home or to some health resort, but all the time the venous congestion should be maintained. When a fair trial of conservative treatment has been given without definite

improvement, operative measures will require to be undertaken; but the experience in Professor Mikulicz's clinic has been that the operations, since these conservative methods have been in use, have not only been much fewer, but also much less serious. This conservative treatment has established itself more and more firmly in favor as time has gone on. The actual number of cures by its use is equal to that attained by the ordinary operative methods, while the functional results which it gives are decidedly better and the mortality is less. Only in adults, with a fixed patella, is primary excision preferred to the conservative measures which have just been indicated.

POSTERIOR MEDIASTINITIS CURED BY OPERATION.

HEIDENHEIM (*Centralblatt f. Chirurgie*, No. 27, 1899) reports the case of a workman operated on because of an abscess of the posterior mediastinum at about the height of the aortic arch. This patient had swallowed a bone a year and a half before, and for two weeks after this complained of pain in swallowing. When he was first seen by the reporter he had not been able to swallow anything for five days, and had suffered from a swelling above the right clavicle for fourteen days. Moreover, there were symptoms of septic absorption, irritability of the heart, and violent pains in the chest. The supraclavicular fossa was almost completely obliterated by an edematous swelling.

A transverse incision was made just above and parallel to the clavicle, and the clavicular insertion of the sternomastoid muscle was divided. The tissues were markedly edematous. An opening was then made by blunt dissection outward and backward toward the spinal column and esophagus. A mass of foul, necrotic connective tissue was found surrounding, at a depth of about three inches outward and backward from the sternoclavicular articulation, a collection of pus. The wound was packed, and healed without complication.

The examination of frozen sections shows that just above the jugulum, and at the level of the first dorsal vertebra, there is a considerable area of loose connective tissue to either side of the esophagus, somewhat broader on the left than on the right side. It has lying behind it the bodies of the vertebræ. The approach to this loose connective tissue is an easy one. After division of the clavicular end of the sternomastoid muscle, by working backward from a point just above the sternoclavicular articulation, this space is reached on the right side through the comparatively wide interval lying behind the jugular vein and carotid artery. It is by this route that pus formed in the posterior mediastinum may reach the supraclavicular fossa.

Carazcani opened such an abscess which formed at the level of the sixth and seventh dorsal vertebræ. He preferred, however, to reach the pus by dorsal incision. The dorsal route is a comparatively simple one, provided the transverse processes of one or more vertebræ are divided at their bases together with the central portion of the ribs attached to the vertebræ. Thus all danger of wounding the pleura is avoided, and hence this method is better than simple resection of a portion of the rib with subsequent thrusting of the pleura to one side.

RUBBER GLOVES OR GAUNTLETS.

SUMMERS (*Journal of the American Medical Association*, July 8, 1899) urges the habitual use of sterilized rubber gloves or gauntlets after cleansing the hands by some good method.

It should be the rule: (1) In obstetric practice; (2) in operating on all forms of septic cases; (3) in the examination and treatment of all forms of septic infectious diseases, such as erysipelas, septicemia, and pyemia, in which the hands come in contact with primary or secondary foci of infection —and this rule applies to the nurse also; (4) in operating on clean cases soon after operations on infected ones; (5) in abdominal sections following vaginal operations on the same individual, this may be reversed, wearing the gloves during the vaginal work, and taking the gloves off or donning a fresh pair before beginning the abdominal work; (6) in examining fresh wounds after recent examinations of or operations on dirty cases; (7) in all forms of rectal surgery.

It is a matter of choice under other circumstances whether or not gloves be worn. However, there is no question that there is less danger of infection where gloves are worn than when reliance is placed in an attempted sterilization of the naked hands. We have the testimony of two good American surgeons, Halsted of Johns Hopkins and McBurney of New York, as to the truth of the lessened dangers of infection when sterilized rubber gloves are worn by all persons

taking part in the conduct of a surgical operation. Many American and European surgeons now use rubber gloves.

An impervious cotton glove is perhaps quite as good as the rubber article—the ordinary glove is not safe. The author states that during the six months he has been using rubber gauntlets in his work, the results have been more gratifying than formerly. Occasionally he has felt compelled to take off the gloves in order to carry out some technique more satisfactorily, but such acts seldom occur now. There is little difference in tactile sensibility between the naked fingers and those covered with a well-fitted, good-article rubber glove. The advantages outweigh the possible, in rare instances, lessened tactile acuteness. One dozen pairs of the best quality can be bought for fifteen dollars. Sterilized glycerin may be used to lubricate the hands before drawing on the gloves. A glove that cannot be reasonably easily drawn over the hand after filling it with sterile water is too small. Vaselin or grease ruins the rubber. The gloves should be either boiled or wrapped in a towel and placed in a steam sterilizer. Lastly, rubber gloves are a protection to the physician and surgeon against infection.

A PLASTIC OPERATION DESIGNED TO SUBSTITUTE, FOR THE SPHINCTER ANI, THE LEVATOR AND THE GLUTEAL MUSCLES.

LENNANDER (*Centralblatt f. Chirurgie*, No. 25, 1899) had brought to him a patient suffering from incontinence of the feces, as a sequel of a severe phlegmonous process which had entirely destroyed the anal sphincter. For the purpose of remedying this disability, the following operation was performed: A cut was made in the middle line, traversing the under half of the sacrum and the coccyx. From the point of this bone it was carried in a curve to either side, the convexity of which touched the tubera ischii. The two gluteal muscles were freed from the sacrum, and from the sacroischiac ligament. To a point corresponding to the upper half of this ligament these muscular flaps were still further freed by an inch and a half incision running from the sacrum in the direction of the muscular fibers. The scar tissue, which was placed about the posterior portion of the rectum, was, together with the raphe of the anal perineum, dissected from the point of the coccyx. The levator ani and coccygeal muscle were then exposed and were divided by a transverse cut reaching almost completely across the pelvis, yet so planned that the arcus tendineus of the levators was not too nearly approached, thus avoiding injury to the nerves which supply these muscles. The levator ani could not be separated from the coccygeus without dividing the inner layer of the pelvic fascia. The levators were drawn forward against the rectum, secured in this position by four catgut sutures placed in the middle line. The defect in the pelvic diaphragm resulting from this transposition was then closed by drawing the two gluteal muscles, which had previously been dissected loose, forward as far as the anus, and fastening them in this position by heavy catgut sutures; uniting them first each to the other, then to the levator ani, and finally to the periosteum of the coccyx. Two drainage-tubes were inserted under the gluteal muscles. The anal aperture was kept closed by sutures during the operation.

The wound suppurated freely. In spite of this the ultimate result was an extremely good one. The muscles were regularly exercised by means of the galvanic current and by voluntary efforts upon the part of the patient to retain enemata.

The author believes that this method of operating may be serviceable in relieving the incontinence which frequently follows cancer operations.

LAPAROTOMY FOR PERFORATED ENTERIC ULCER.

DALZIEL (*Scottish Medical and Surgical Journal*, July, 1899) states that about four per cent of enteric cases admitted to Belvidere Fever Hospital, Glasgow, die from perforation. During the last few years Dalziel has operated on eight cases of perforated enteric ulcer. Three were so advanced in general peritonitis that they were utterly hopeless; nor would he again operate in similar cases. Of the remaining five, one made a complete recovery; one promised well, but died the day after operation from intestinal hemorrhage; one lived three and a half days; while the other two continued to sink after operating, and though relieved from much suffering, died in about the usual interval after perforation.

The prognosis for operation depends upon the early diagnosis of perforation, on the stage of the fever, on the severity of the fever and condition of the patient, and on the nature of the peritoneal infection.

The first of these alone is under the control of those in charge of the case, and it would appear that it is a matter of some difficulty to arrive at an early and accurate diagnosis; nor is this to be wondered at, since the diagnosis depends on the phenomena of peritoneal irritation, so apt to be masked by the general toxemia attending the fever, or originated without any gross perforation at all. The usual classical symptoms, initiated by acute abdominal pain, often attended by a sudden cry, vomiting, the rise and perhaps, if in the acute stage of the fever, a sudden temporary fall in the temperature, the rapid increase in the pulse-rate, the rigid abdominal muscles, with flattening of the abdomen, soon followed by distention from tympanitis, and later from the accumulation of peritoneal effusion, the distressed thoracic breathing, the pinched features and anxious, terrorized look, no doubt form a clinical picture which cannot be mistaken; but when the picture is complete, and the diagnosis certain, it is generally too late for surgical interference to be of any avail.

After about twelve hours the peritoneal infection has become so extensive and profound that little hope can be entertained of so cleansing it that its phagocytic power, enormously great as it is, may overcome the microbic infection. Every hour that passes increases the gravity of the prognosis with the ratio of microbic multiplication. No doubt the "twelfth hour" will be reached at different times in individual cases according to the nature and amount of the initial infection, as for example whether it be the bacillus coli commune, a streptococcus, the mere chemical irritation of the intestinal contents, with absence or at least a very minimum amount of microbic growth. As a matter of fact, in some cases which have recovered no microorganisms were found in cultures made from the peritoneum twenty-four hours after the operation. The more aseptic the intestinal canal can be kept, the better the prognosis after surgical interference. The typhoid bacillus seems to play a small part in the peritoneal mischief, and has not been found in the free fluid from the peritoneal cavity.

It is necessary, then, to consider what symptoms may be relied on to warrant early diagnosis and operative interference.

The symptoms of abdominal pain and tenderness developing suddenly in or near the third week of the disease must be looked on as of serious import.

Tenderness on pressure is usually found to the right of and below the umbilicus, near McBurney's point in appendix perforation, and in the iliac fossa and flank in cæcal perforation. While in acute cases there may be considerable tenderness throughout the illness, it must be looked upon with grave suspicion if it occurs suddenly late in the affection, and should suggest the involvement of the serous covering of the bowel in the inflammatory process, or an actual perforation which may either form gradually, as in the case of a perforating ulcer of the stomach and as especially happens late in the disease after the fall of temperature, or suddenly from a gross slough of the base of the ulcer. Clearly tenderness may be due to a localized peritonitis over an ulcer, and this strengthened by deposit of lymph or formation of adhesions to surrounding parts may spontaneously recover or pass on to perforation. It is to be noted, as accentuated by Frank Gairdner in his monograph on "Peritonitis in Enteric Fever," that a local peritonitis initiated without perforation may extend, become general, and kill the patient.

This stage of localized peritonitis might well be termed the "preperforative stage," were it not that it is not necessarily followed by actual perforation. It ought, however, to induce extreme vigilance on the part of the physician, and probably his association in the case with a surgeon.

Actual perforation generally occasions pain so great as to make the patient cry out. The muscles overlaying the rupture become rigid. Sudden alterations of temperature are common. There is vomiting, probably only in one act, to be resumed in the later stages of the peritonitis as a continuous and distressing symptom. The pulse gets more rapid in every case, and very soon after perforation may increase in frequency with alarming rapidity.

In the preperforative stage the increase in pulse-rate may be comparatively slight, as from ten to fifteen beats per minute, and this with the other mild symptoms may, with the coating of protective lymph or formation of adhesions, lull the observers into a false security. The author states that in nearly all his cases the symptoms of the preperforative stage have been well marked. The symptoms are not peculiar to enteric ulcer perforations, but may be equally well marked in ordinary appendix ulcerations, and, as pointed out by Cushing, in dysenteric ulcerations as well.

Applying the principles which guide surgeons in cases of perforative peritonitis other than enteric, surely no one cares now to wait till the appendix has perforated in a case where there is good ground to fear it.

There remains, however, one symptom of which the author states he regrets he has had too little practical experience, but which seems worthy of careful elaboration, namely, leucocytosis, to which much attention has lately been paid, especially in the Johns Hopkins Hospital, by Thayer, and concerning which the following conclusions have been drawn by Dr. Harvey Cushing, in his excellent monograph on enteric perforations:

1. The appearance of leucocytosis in the course of typhoid fever points towards some inflammatory complications in the early stage.

2. If the complication be a peritonitis and remains localized, associated with a preperforative stage of ulceration or with a circumscribed slowly-forming peritonitis after perforation, it may be, and usually is, signalized by an increase of leucocytosis in the peripheral circulation.

If, however, a general septic peritonitis follows, the leucocytosis may be transitory and overlooked, as it disappears concomitantly with the great outpouring of leucocytosis into the general cavity.

Accurate early diagnosis is not a simple matter, and, bearing in mind the disaster in delay, it seems a wise course if in doubt to operate.

All of these cases are repeated at more or less length. There have now been over eighty cases recorded as recovering after enteric perforation; and while not a few proved to be localized by previous adhesions, the great proportion of them were perforations opening into the free peritoneal cavity. Later statistics indicate twenty-five per cent of recoveries after operation, and this, Dalziel believes, is a reasonable estimate.

The operation is usually a very simple one. The perforation can in ninety per cent be found without any difficulty, and with very slight exposure of the bowel. No blood is lost and no important structure is cut, and the patients bear what slight operative interference is required remarkably well. An incision two to three inches in length in the middle line below the umbilicus gives sufficient entry to the field of operation, and is indeed directly over the portion of the bowel most frequently affected. In three of Dalziel's eight cases the perforation was found in the first loop of the bowel presenting in the wound. In the others it was readily found by tracing the ileum upwards till the perforation was seen. The suturing of the gut is early accomplished by two rows of continuous fine silk sutures, carried beyond the margins of the ulcer.

INFLAMMATION OF THE HIP BURSÆ.

ZULZER (*Deutsche Zeitschrift für Chirurgie*, Badn. L.), on the basis of a case which led to repeatedly mistaken diagnosis, contributes a profitable study of the inflammations of the bursæ placed about the hip-joint. Inflammations of these bursæ are comparatively rare; and it is, perhaps, mainly because of this that when they are encountered a mistake is common. The two bursæ of chief clinical interest are the one placed beneath the iliopsoas muscle and the one lying beneath the gluteus maximus over the greater trochanter. Hydromata, cysts, and abscesses may occur in either of these bursæ.

A collection of sixty cases made by the author shows that fourteen were subiliac and the rest trochanteric.

The subiliac is placed below Poupart's ligament and beneath the iliopsoas muscle. When this bursa becomes inflamed and swells, the tumor may reach large dimensions, extending even as far as the middle third of the thigh. A smooth, tender, usually fluctuating tumor develops, often accompanied by pain along the course of the crural nerve, and sometimes complicated by symptoms of pressure upon the large vessels. There is some interference of motion, and occasional fixation. The leg is usually held in abduction, slight outward rotation, and moderate reflexion.

The disease is distinguished from coxitis by the absence of shortening, by the fact that the great trochanter is in its normal position, and by the absence of tenderness in the hip-joint. Injury is usually the cause of inflammation, though exceptionally rheumatism, syphilis, or gonorrhea may cause a bursa in this region. The disease is extremely chronic.

Trochanteric bursitis is characterized by much the same symptoms, except that it may be confused not only with coxitis, but with periarticular abscesses, or inflammation of the trochanter itself. The trochanteric bursa frequently becomes tuberculous.

The treatment should be radical, the entire sac being dissected out.

OPERATION FOR CLUBFOOT.

SCHANZ (*Centralblatt für Chirurgie*, No. 25, 1899) calls attention to the frequency with which the desired result is not attained after a very thorough series of operations for the remedy of the deformity and disability incident to clubfoot. Even though the patient treads upon the sole of the foot when the deformity is corrected, there is a permanent adduction of the anterior part of the foot and a shortening of the plantar fascia. To prevent this, he urges that the tendo Achillis should not be cut until the adduction and the contraction of the plantar fascia have been entirely overcome. The first operation divides all the structures which interfere with the proper position of the foot, excepting the tendo Achillis. A plaster-of-Paris bandage is put on, the patient is encouraged to walk, and four to six weeks later the tendo Achillis is cut.

OINTMENTS AND PASTES.

WENDE (*American Medical Quarterly*, June, 1899), holding that a careful selection of local remedies is of greater significance than a well directed constitutional administration of drugs, gives an admirable outline of the principles on which ointments should be compounded. Anhydrous lanolin he prefers as a basis.

Pastes, during the last few years, have been largely used in the treatment of skin affections, especially for the various types of eczema. They were first introduced to the notice of the profession by Lassar and Unna, of Germany. They are applications which resemble ointments, having a firmer consistence, however, due to a powder incorporated in an unusual proportion. The substances used may be either of a mineral or vegetable origin. The minerals generally employed are kaolin, talc, bolus alba, chalk, zinc oxide, calcium, and magnesium carbonate, while those taken from the vegetable world are usually starch and lycopodium.

The advantages over ointments are twofold. They not only defend the eruption from external irritation, exclude the air, preventing desiccation and oxidization, but the excretions and secretions of the diseased parts, through their influence, are also absorbed. Furthermore, they aid adhesion, producing a fixation of medicaments. These preparations employed for local application in the treatment of skin diseases are either of a hard or soft consistence, the former containing more or less gelatin.

One of the best known and useful belonging to this class is the so-called Unna's gelatin paste, made by the combination of:

℞ Zinci oxidi,
Gelatin, āā 7.50;
Glycerin, 15.00;
Aquæ destil., 20.00.

This forms a basis in which may be incorporated iodoform, salicylic acid, ichthyol, chrysarobin, thiol, or other antiseptics, to meet the indications of the case. It is beneficial in overcoming the evils engendered in subacute and chronic eczema and like inflammatory processes.

However, it is contraindicated in very hot climates, owing to its limitation, preventing solidification; nor is its application adapted to hairy parts, as its removal then would be painful. As a practical suggestion in its use before it has become hardened or set, it would be advantageous to gently pat it with absorbent cotton or cover it with a thin layer of cheese-cloth in order to prevent the undergarments from adhering to it.

Of the soft pastes, the one that has enjoyed the best reputation is that first prescribed by Oscar Lassar, and named after him. It consists of:

℞ Acidi salicylici, 2.00;
Zinci oxidi,
Amyli,
Vaselin,
Lanolini anhydr., āā 20.00.
Misce. Leniter lerenda fiat pasta.

This exceedingly useful therapeutical preparation is of extensive applicability, notably in the different forms of eczema. It is applied like an ointment, spread on the skin, leaving a coating on it and absorbing secretion instead of sealing it up.

Other remedies, as tar, beta- and hydronaphthol, ichthyol, etc., may be profitably combined. A gum paste is a modification of the soft variety, in that it contains gum arabic. This mixture should be carefully prepared without the aid of heat, and consists usually of some particular powder in the proportion of two parts to one of mucilage of acacia and one of glycerin.

Chrysarobin and pyrogallol should not be added to gum pastes. Fatty and soapy substances, if commingled in large amounts with these pastes, injure their special properties.

Their mode of application is a matter for attention and of importance. They should be gently rubbed upon the diseased part with the fingers or an appropriate spatula, the

former being used when the skin is tender. They should be well introduced into all cracks and crevices, and uniformly distributed in a moderately thick layer over the whole of the affected epidermis in order that the physiological and therapeutical properties possessed by the paste may be justly fulfilled.

THE VALUE OF THE DIFFERENT METHODS OF BOWEL UNION.

FOWLER (*Annals of Surgery*, July, 1899) has abstracted an article by Chlumsky (*Centralblatt für Chirurgie*, 1899, ii) based on an experimental investigation on dogs and human cadavers. The tests were made by means of hygrometric pressure.

In the human bowel the intact intestinal wall alongside of the anastomosis was torn earlier than the site of the anastomosis itself. Recent intestinal unions in dogs, applied in the living animal and examined at once, appeared to be less resistant than those in the bowel of the dead dog.

The firmness of the intestinal anastomosis applied in the living dog diminished continuously for the first four days. During the first twenty-four hours it diminished only moderately, unless the peritoneal inflammation due to the operation was very severe at the site of the anastomosis and its neighborhood (100 to 200 millimeters hygrometrically); if the loops of anastomosis were markedly reddened or otherwise considerably altered, the firmness of the anastomosis diminished surprisingly after twenty-four hours (20 to 100 millimeters hygrometrically); forty-eight hours following operation, in case of slight inflammatory reaction, the resistance was still less (80 to 120 millimeters hygrometrically), and diminished still more during the next twenty-four hours. On the third and fourth twenty-four hours, the lowest resistance was regularly reached (50 to 90 millimeters hygrometrically).

On the fifth day the resistance to pressure increased (50 to 120 millimeters hygrometrically), and on the seventh day increased to the resistance of the recent anastomosis (150 to 340 millimeters hygrometrically). Twenty-four days following, the original resistance was increased (250 to 350 millimeters hygrometrically).

Ten days following operation, the intact bowel tore before the site of anastomosis gave way (height of pressure 380 to 400 millimeters hygrometrically); and on the fifteenth day in only one case did the anastomosis tear before the uninjured bowel wall. Thirty days after operation, and in one case 120 days after, the resistance of the site of anastomosis and the bowel wall was nearly equal.

At first sight it is surprising that such low pressure will tear the anastomosis between the third and fifth day. One would imagine that the solidity of the anastomosis would steadily increase. This can be readily explained. During the first two days the parts are fixed mechanically by the suture or button. The parts gradually become infiltrated and consequently less resistant, thus offering a less secure hold for the fixing elements. Every operator knows what small resistance most tissues possess two to five days after a trauma. In the intestinal wall the conditions are similar.

Further, anastomosis by button did not differ materially from anastomosis by suture; either was torn by approximately the same amount of pressure. In case of simple mechanical traction the anastomosis by button gave way earlier, especially when the button was cast off or absorbed before the fifth day. Attention is drawn to the fact that in certain cases in which the Murphy button was used, even in cases of recent anastomosis, while the anastomosis gave way sufficiently to allow the button to show, yet no fluid escaped for some time after. This is accounted for by the integrity of the purse-string suture fastening the intestinal wall to the button.

As a general rule, however, circular anastomosis stood a higher pressure than lateral. In recent anastomosis, done by suturing, the site of rupture was almost always at the point where the knot of the continuous suture lay. This was particularly so if two knots lay together. If the continuous sutures were first tied separately and then together the perforation was always at this point.

All the anastomoses were exceedingly fragile from the third to the fifth day. In two cases, in spite of the greatest care, the anastomosis was torn before the manometer examination. Adhesions to neighboring structures, especially to omentum, were regularly present. During the first few days the site of anastomosis was found almost entirely encircled by portions of the greater omentum. Later, after weeks and months, these adhesions were less numerous, but in only two cases were they entirely absent. In one case, the serous surface being scarified after Wölfler's method, the adhesions were so nu-

merous that it was extremely difficult to identify the site of anastomosis. Anastomoses the seat of adhesions withstood a higher pressure than those not so supported. In one case a small flap of the greater omentum around the site of a button was sutured, with excellent result.

In regard to button methods, the results were not so favorable. Chlumsky concludes that a button must stay in a dog's bowel at least five days, protecting the site of anastomosis in a purely mechanical manner; if left longer than a week it is apt to cause necrosis. In one case a Murphy button passed *per anum* three days following its application—that is, at a time when its presence was most essential. In another case it caused perforation on the third day. The result with decalcified bone button was still more unsatisfactory. All of these absorbable buttons, particularly Frank's, were absorbed early, or soon passed in a half-digested condition. Hardening or partial decalcification afforded but slight improvement.

In two children, the subjects of gastric fistulæ, because of stenosis of the esophagus due to potash burns, the author had the opportunity afforded of introducing into their stomachs small undecalcified bone olives. These were in a stage of advanced digestion after two or three days. Decalcified bone olives, left in the same time, became as soft as butter. In the colon, however, they remained unaltered for from seven to ten days.

THE IMPORTANCE OF BLOOD EXAMINATIONS IN REFERENCE TO GENERAL ANESTHETIZATION AND OPERATIVE PROCEDURES.

FISH (*Annals of Surgery*, July, 1899), who is profoundly impressed by the dangers incident to anesthetization, contends that a solution of the problem of safety in anesthesia can be attained only in the laboratory.

In the blood we have a gauge, the readings of which give us a fairly accurate insight into our patient's general condition. While being of the greatest diagnostic and prognostic value, it acquaints one with conditions operable and inoperable. If the cases are inoperable, so far as the resistance and reactionary powers of the individuals are concerned, it shows by a regenerative treatment when they become operable or when operative procedures should be refrained from altogether.

Neurasthenics, anemics, chlorotics, leucemics, and those of a so-called lymphatic temperament, withstand general anesthetizations and operations poorly, and in all these the blood shows marked changes from the normal, which is believed to account for the difficulties and dangers attendant upon operative procedures in these individuals.

It is imperative that a routine practice of blood examinations should be instituted by surgeons and by internes of surgical hospitals in conjunction with the methods established, giving us thereby absolute indications for palliative or radical treatment.

The specimen of blood to be examined is taken from the lobe of the ear or finger-tip by a small puncture, after thoroughly washing with soap and hot water, and is then examined for—

1. Its specific gravity by Hammerschlag's method.
2. Its reaction by the method of Leibreich.
3. Its absolute and relative number of red and white corpuscles by the Thoma-Zeiss counter; also the shape, size, and color of the former, and the varieties and staining properties of the latter.
4. Its hemoglobin percentage, as given by the instrument of von Fleischl.

The specific gravity indicates grossly pathological conditions of the blood elements, and gives us a fairly accurate estimate of the hemoglobin percentage.

The reaction is important from the fact that individuals whose blood shows a decrease in alkalinity withstand general anesthetizations and operations poorly.

The number and characteristics of leucocytes are of the utmost importance from a diagnostic and prognostic standpoint; for, besides influencing to a greater or less extent the production of safe anesthesia, they also indicate with accuracy when to and when not to operate in certain cases, as is shown by the following:

1. Infection, mild; resistance, good; small leucocytosis.
2. Infection, less mild; resistance, less good; moderate leucocytosis.
3. Infection, severe; resistance, good; very marked leucocytosis.
4. Infection, severe; resistance, poor; no leucocytosis.

The above can be surgically interpreted into: (*a*) When to employ palliative means of treatment; (*b*) when to consider operative intervention; (*c*) when to operate; (*d*) when not to operate.

In individuals whose blood presents a

hemoglobin percentage of fifty or less, the anesthetic vapor produces quickly an increased pathological condition by a forced abstraction of oxygen from a tissue ill-conditioned to part with it; or, the hemoglobin percentage being so small, the compound resulting from the anesthetic vapors controls its ability to take up the requisite amount of oxygen and imparts it to the tissues as under normal conditions. Hence it is not surprising that these individuals show quickly signs of collapse. Besides certain nervous forces, respiration is dependent upon the amount of hemoglobin contained in the blood, and if this is reduced beyond a certain limit, respiration must cease. The minimum is apparently twenty per cent, as in three cases dying of collapse after operation Mikulicz found only fifteen per cent remaining.

A safe rule to follow is, never produce a general anesthetization in an individual whose blood shows a hemoglobin percentage of less than fifty.

Safe anesthesia is dependent upon, first, the percentage of hemoglobin in the blood before, during, and after anesthetization; and secondly, a normal or increased number of the polynuclear neutrophiles. Anesthetic vapors may be inhaled with impunity just so long as the hemoglobin percentage remains higher than the physiological requirements of the system, and the phagocytic or reactionary powers of the polynuclear neutrophiles are not overcome by the anesthetic compound.

Oligochromemia, from whatever cause, should invariably be considered as a contraindication for the administration of a general anesthetic for diagnostic or operative purposes.

OBSERVATIONS UPON VOLVULUS, WITH REPORT OF THREE CASES SUBMITTED TO OPERATION.

ELIOT (*Annals of Surgery*, July, 1899) has operated upon three cases of obstruction of the bowels, due to volvulus. In one case the operation had to be repeated twice for the relief of recurrence. One case died.

In all cases where volvulus is suspected a rectal examination should invariably be made. If the sigmoid is twisted, the introduction of a sufficiently small hand and forearm will detect the obstruction. As this instrument of examination is not usually available, the capacity of the gut below the obstruction should be determined by the injection of water, and by this means it is found that a relatively small amount only can be introduced, and, after being retained for a short time, is more forcibly expelled than normally is the case.

In the rarer enteric variety, the application of this test yields a negative result.

The examination of the abdominal wall is more satisfactory, when conducted after complete anesthesia has been established. Even before this is done, inspection sometimes reveals a condition of local asymmetry due to the distention of the affected loop.

By palpation the distended, elastic, and resistant arms of the twisted loop may be mapped out quite accurately on the abdominal wall, especially when muscular relaxation has followed the administration of the anesthetic. In cases of marked constriction, the paralysis of the affected loops renders them immovable and fixed, so that their position in the abdominal cavity is a constant one. Percussion should be conjoined with auscultation. The area of tympany thus obtained corresponds to the position of the elastic, distended loops.

The treatment of volvulus is both palliative and radical. In a small percentage of cases spontaneous reduction can take place through peristaltic activity alone. This can be occasionally accomplished by the effort of the surgeon. For this purpose reduction may be favored by the inversion of the patient. This neutralizes whatever effect gravity may have had in the production of the difficulty.

When the sigmoid is involved, the use of rectal injections may result in reduction. Eliot notes one case in which intrarectal manipulation by a diminutive hand failed to untwist the gut. This is a measure, however, that might easily succeed in those cases in which the volvulus is of recent formation.

The trial of any palliative measure should not be allowed to consume any considerable length of time, and should be immediately followed in the event of failure by laparotomy.

If an accurate diagnosis has been made, the abdominal cavity may be opened in that part immediately overlying the affected loop. If, on the other hand, the diagnosis is uncertain, the median incision is preferable, as it allows a rapid examination of the abdominal contents, an accurate diagnosis of the nature of the difficulty, and usually through it the particular method of treatment indicated may be satisfactorily carried out. If the affected loop cannot be easily

reached through such an incision, a second lateral one may be quickly made without subjecting the patient to any additional risk, and without causing any increased weakness of the abdominal wall, in the event of ultimate recovery. This method of procedure is indicated particularly in those cases of volvulus of weeks' duration, which resemble obstruction by obturation, especially carcinoma; and in this latter condition, when the sigmoid is involved, the first evidence of the existence of the trouble not infrequently consists in the development of symptoms of acute obstruction. Two such cases, in fact, have come under the writer's attention. To distinguish accurately between these two conditions is particularly important, because in each group of cases the appropriate treatment is entirely different. In carcinoma an artificial anus gives relief; in volvulus, nine cases reported in the literature of the subject, so treated, proved fatal without exception.

With the opening of the abdominal cavity it is absolutely essential in every case to accomplish the reduction of the volvulus by manipulation. This should be gently employed, as laceration of the gut at the point where the two limbs cross has taken place during efforts of reduction.

If the gut proves viable, measures should be taken to prevent the recurrence of the volvulus, provided that the general condition of the patient does not contraindicate this procedure. To attain this end the entire sigmoid flexure has been resected with success, the divided ends being brought together by end-to-end anastomosis. In three such cases one promptly died; one died a month after the operation of septic pneumonia, the peritoneal cavity and sutured gut being found, on autopsy, in a normal condition; and the third recovered. This method of treatment seems ultraradical and dangerous, when simple measures will accomplish the same purpose. It is always difficult in such cases to determine the exact amount of gut which it is proper to remove, and the divided ends, having been at any rate moderately congested before the operation, do not unite with the same degree of certainty as in those cases of resection where no impairment of circulation has previously existed.

Senn recommends the shortening of the mesosigmoid by passing through it successive rows of sutures. It is doubtful whether this is of any practical utility.

The best plan of procedure seems to be the passing of interrupted catgut or silk sutures between the serous coat of the gut and the anterior parietal peritoneum. In those cases in which the constriction has caused death of the gut, the necrotic portion should be removed, and the divided ends brought into the angles of the wound to be united subsequently, when the patient's general strength has been restored.

ON MOVABLE KIDNEY.

WALLACE (*Scottish Medical and Surgical Journal;* quoted from *Journal of Cutaneous and Genito-Urinary Diseases*, July, 1899) believes post-mortem statistics of mobility to be fallacious, as the kidney is more fixed after death than during life, and that no satisfactory explanation has been given either of the reason for the greater frequency of the occurrence on the right side as compared with the left, or of the causes which lead to kidney mobility. The theory that it is more common in women of the poorer classes, who have borne many children at short intervals, the observations of several authors have failed to substantiate, and in his own cases requiring treatment — fourteen in number — thirteen were females, and of these seven were nulliparous, and only one of the others had borne several children and belonged to the poorer classes.

The loss of fat, supposed to be a predisposing cause, the author is inclined to believe to be in reality the result, as it certainly is in the cases with gastrointestinal symptoms. The condition comes on gradually in the majority of cases and gets progressively worse, and the exact time of onset is rarely known, unless due to traumatism.

When palpating the lumbar region for the kidney it may fail to be found, because at the time of examination it may be low down in the iliac fossa — a source of error to be borne in mind.

Clinically, the symptoms are grouped under four heads: (1) Simple mobility without symptoms; (2) pain, described as a sensation of aching and dragging, on the affected side; (3) renal pain, which may be accompanied by hematuria, pyuria, or intermittent hydronephrosis, but not necessarily so; (4) the gastrointestinal disturbances accompanied by, or ending in, neurasthenia. The symptoms, however, are not always commensurate to the mobility.

The affected kidney is usually healthy, and the symptoms, as a rule, wholly subside after fixation of the kidney.

The author accepts Kendal Frank's explanation of symptoms: (1) Some symptoms are common to both kidneys, as the dragging pain, sense of weight, neuralgic pains, fatigue, and debility; (2) some symptoms belong exclusively to mobility of the right kidney, the gastric crises, indigestion, flatulence, vomiting, and pain, which come on about two hours after eating. The symptoms peculiar to the left kidney are not pointed out.

With regard to treatment three classes are to be recognized: (1) Those in which no treatment is necessary, the condition being discovered by accident; (2) those relieved by the wearing of a pad; (3) those requiring operation—nephropexy. For a pad, the author prefers an air-pad, fixed to the corset, and put in position while the kidney is known to be in place.

CURE OF VERY GRAVE ACCIDENTS IN TWO PROSTATICS BY CATHETERIZATION.

JANET (*Ann. d. Mal. d. Org. Génito-Urin.;* quoted from the *Journal of Cutaneous and Genito-Urinary Diseases*, July, 1899) reports two very interesting cases, from the point of view of the choice of surgical intervention.

Both cases were grave. One had urinary intoxication with high fever, the other severe bladder hemorrhage. In both, especially in the latter case, cystotomy was proposed, and decided upon as urgent; nevertheless, simple catheterizations properly applied sufficed to relieve the gravity of the situation.

The first patient, eighty-one years old, had used the catheter for ten years, without any precautionary procedures. His urine had been infected for a long time. There was a residue of a pint of urine after spontaneous urination. At night the patient used the catheter two or three times. The urine was very purulent, a colon-bacillus infection, with evidence of pyonephrosis. He had thirst, dry tongue, anorexia, insomnia, itching of the skin, and gradual onset of fever, mounting to 102.5° F., with marked oscillations, and rapid loss of flesh. Under the catheter, *à demeure*, which was changed every third day, there was gradual improvement, but a purulent urethritis set in, followed by a discharge of pus, apparently due to prostatic abscess. After this occurrence improvement again set in, and by lavage and internal catheterization all symptoms cleared, though the urine remained purulent; but the patient was able to resume his former life.

The second patient, seventy-six years old, had suffered for several years from prostatic enlargement. When first seen he had a purulent residual urine and a very large prostate. Daily catheterization and lavage were advised, under which he did well for several months. Then he began to have severe vesical pain and frequent urination, and a sense of weight. One day a large quantity of blood followed catheterization, which, in spite of treatment, recurred with severity each day, and a tumor was suspected. Cystoscopy was impossible, and the patient entered the hospital for operation. Pending the operation, regular catheterization was instituted every two hours, and the urine withdrawn was replaced each time by an equal amount of boric solution. Under this régime the hemorrhage ceased, and the same procedure was continued for one week. The hemorrhages did not return, the bladder cramps disappeared, and the patient improved. Complete catheterization was then performed, and the intervals lengthened, and light lavage of silver nitrate was made. The urine became clearer. In three weeks the catheterizations were made morning, night, and in the middle of the night; then only twice a day; and the patient began to urinate spontaneously. He was then allowed to return home, and to again catheterize himself.

According to Janet, catheterization is the operation of choice in the retention of prostatics, even in the grave accidents which complicate it.

DIAGNOSIS AND TREATMENT OF DIFFUSE SEPTIC PERITONITIS, FOLLOWING PERFORATING DUODENAL ULCER.

SCHWARTZ (*Bulletin et Mémoire de la Soc. de Chir. de Paris*, xxiv; quoted from the *Brooklyn Medical Journal*, July, 1899) briefly reports four fatal cases of perforating duodenal ulcer, communicated to him by Rochard, Gumiard, Sieur, and Loison. The first of these authors treated the perforation by laparotomy, without result. In the discussion on diagnosis and treatment, Collin's investigations (conducted under Letulle's direction) are quoted. In 262 cases collected, the distance between the ulcer and the pylorus was less than two inches in 242 cases—*i.e.*, was in the upper third of the duodenum. In 85.6 per cent there was a single ulcer; in twenty-six cases two ulcers; in three cases three ulcers; in four cases five

ulcers. The usual site is on the anterior duodenal wall. Duodenal ulcers are far more likely to perforate than ulcers of the stomach. Collin concludes that sixty-nine per cent perforate. In the majority of cases perforation took place directly into the peritoneal cavity; these did not present marked symptoms of disease previous to perforation. In only five cases out of twenty-five collected by Schwartz was any disease diagnosticated previous to perforation — one as dyspepsia, two as gastric ulcer, and two as simple gastralgia.

Pain is a constant symptom, is intense, and is located in half the cases below the right costal arch or in the epigastrium; rarely on the left side. Prostration is rapid. Temperature is usually low, rarely above 100° F. The pulse is markedly accelerated. Vomiting is often absent at the onset, and may not appear for forty-eight hours. There is rapidly increasing rigidity of the abdominal muscles, which prevents palpation of the abdominal viscera. Percussion gives tympany in place of normal liver dulness. Intestinal obstruction is present.

A correct diagnosis was made in a very small proportion of cases, obstruction or appendicitis being diagnosed. The incorrect diagnosis usually resulted in delayed operation. Only three out of twenty-five cases operated upon resulted in recovery, and in only one of the three was recovery permanent. One of these succumbed two months later to ileus, due to adhesions, and the other to a second duodenal perforation six months after operation.

Schwartz advocates early exploratory laparotomy and suture of the perforation. Frequently the greatest collection of pus in diffuse septic peritonitis is in the right iliac fossa and below the liver. If indubitable evidence of disease of the appendix is not present, a further search must be made for the site of perforation.

In the discussion of this subject Tuffier advises gastroenterostomy before perforation has taken place in those cases in which a diagnosis can be established.

TWO CASES OF RESECTION OF THE LARGE INTESTINE, WITH RECOVERY.

EVE's first case (*Medical Press and Circular*, May 17, 1899) suffered from a large left scrotal hernia, strangulated for three days. Herniotomy showed that the sac contained a knuckle of the transverse colon, which was gangrenous. A glass tube was inserted into the intestine, and the latter was attached to the wound. Five weeks later the intestine forming the artificial anus was brought out of the abdomen after opening the peritoneum, and was resected and sutured. The intestine was returned, and the abdomen closed. Primary union and recovery without complication.

The second case was an example of carcinoma of the descending colon. A woman, aged forty-seven, had suffered with pain in the abdomen, vomiting, and constipation for seven months. A tumor in the left loin, just below the ribs, had been noticed for some months; it was movable from side to side, and evidently situated in the descending colon. The constipation culminated in an attack of obstruction, during which the first operation was performed. This consisted in bringing out the tumor with several inches of healthy bowel, and fixing the bowel to the parietes. The bowel was drained by the insertion of a glass tube. Ten days later the protruding portion of the bowel was removed, and the mesenteric edges of the divided ends were brought together with sutures. After allowing an interval of a month for the inflammatory effusion around the wound to become absorbed, an incision was made around the artificial anus down to the peritoneum. The latter was not opened, but was separated from the parietes for about two inches all round the protruding bowel. The free ends of the intestines were refreshed and brought together with Lembert sutures. The parietes were then closed over the bowel. The wound was completely healed three weeks after the operation. At the present time the patient appears perfectly well, and has suffered no inconvenience.

The writer is of opinion that in these and similar cases the bowel should be drained, even although only moderate symptoms of obstruction existed.

Although Murphy's button could be inserted very rapidly and readily, the intestines could not be completely drained, and in this case the shock of the resection was added to the illness from which the patient was suffering.

The author thinks that for the large intestine, at any rate, suture is safer than the use of Murphy's button.

The second case was published especially to draw attention to the merits of extraperitoneal resection and suture for artificial anus

as the safest method. It was introduced by the late Dr. Greig Smith. This operation was attempted in the first case, but had to be abandoned owing to the extreme thinness and friability of the peritoneum. This was probably due to stretching of the membrane from the presence of a large hernial sac in its neighborhood.

CURE OF ASCITES DUE TO LIVER CIRRHOSIS BY OPERATION.

MORISON (*The Lancet*, May 27, 1899) reports a case of ascites due to liver cirrhosis successfully treated by operation, and further records the post-mortem findings in a woman operated on two years ago. These showed clearly the free vascularization of the adhesions which united the liver, spleen, intestines, omentum, and parietal peritoneum. This specimen establishes our belief that an efficient anastomotic circulation can be brought about by operation. There can also be no doubt that this patient was cured of ascites, and that useful life was prolonged to her for two years by the operation. A further examination of the specimen showed the liver to be much atrophied and degenerated. The spleen was at least four times its normal size. It is quite evident that the obstructed portal circulation had nothing to do with the splenic enlargement—in this case at all events—for the new anastomotic circulation was clearly more than sufficient to compensate for any diminution in size of the portal vein.

The author states that it is more rare than he thought to see uncomplicated cases of liver cirrhosis and ascites. Valvular heart lesions, thoracic aneurism, albuminuria, and glycosuria are the most frequent complications which he has met with, and each would seem to contraindicate operation, because but seldom can the latter be but temporary. Of the two previously recorded cases one was successful in curing the ascites, the other was not. The clinical diagnosis of liver cirrhosis was not in the latter case corroborated by surgical examination of the liver, and Dr. William Ewart suggested at a meeting of the Harveian Society of London on April 6, 1899, that this case might be similar to one under his care. In his case the operation failed to cure an obstinate ascites which was believed to be due to liver cirrhosis, and his patient died, like the author's, several months after the operation. In his case the post-mortem examination showed a universally adherent pericardium, stiffened by a layer of calcareous salts which must have precluded the contraction of the ventricles. The liver was not cirrhosed.

The author has now operated on four cases. Two were uncomplicated and were regarded as suitable cases for operation, and both of them were cured. In one the diagnosis was doubtful, and in another the complications were such as to preclude recovery.

The conclusions which the author has come to are as follows:

1. Ascites due to liver cirrhosis can be cured by the establishment of an efficient anastomotic circulation.

2. Adhesive peritonitis produces adhesions between the abdominal contents and its parietes, in which new blood-vessels form. If there is any demand for the new blood-vessels they remain permanently.

3. The operation described in the paper by Drummond and himself (*British Medical Journal*, Sept. 19, 1896) is the safest and most certain method of producing adhesions.

4. It is no longer advisable to treat the ascites due to cirrhosis by repeated tappings if the patient is otherwise sound and in fair general condition. After one or two tappings have failed operation offers the best chance of a prolonged and useful life.

A SERIES OF CASES OF ARTHROTOMY FOR THE RELIEF OF PAIN, REMOVAL OF SYNOVIAL FRINGES, LOOSE BODIES, AND FIBRO-CARTILAGES.

LOCKWOOD (*Medical Press and Circular*, May 17, 1899) first referred to four cases in which the wrist-joint had been opened for the relief of pain. Two of these occurred in women, and were possibly pyemic. The joints were opened by longitudinal incision between the extensor tendons, and were drained for some days, after which the wound completely healed. The relief from pain was immediate and permanent. The third case occurred in a man, and was proved by histological examination to be tuberculous. It was treated in a manner similar to the two former cases. Pain was immediately and permanently relieved, and the disease was arrested. The fourth case also occurred in a woman. The inferior radioulnar articulation was inflamed, and had been for four years, and was the seat of extreme pain. It was opened by dorsal incision, and as the cartilage covering of

the lower end of the ulna was eroded and the bone inflamed, the head was removed. The incision was closed without drainage, pain ceased, and the ultimate recovery was perfect.

It was pointed out that in all these cases the operation was performed for the relief of pain. Mr. Lockwood had often performed arthrotomy in cases of acute septic arthritis in which pain had been present. Obviously, under these circumstances, the operation was not performed for the relief of pain, but to give exit to septic or purulent fluid.

Arthrotomy for the removal of inflamed and elongated synovial fringes was next referred to. The case of a married woman was described at length. For six years she had had repeated attacks of synovitis; latterly the swelling and inflammation of the knee-joint had become almost continual. The symptoms were very like those which are caused by the presence of a loose body within the joint. None could be detected, and the joint was opened. The absence of a loose body was confirmed, but the whole of the synovial fringes of the joint were observed to be exceedingly long and inflamed. It seemed likely that some of them might have been nipped betwixt the articular surfaces. They were all removed. For this purpose the ligamentum patellæ was divided. A speedy recovery ensued. Nine months after the operation she said that the knee was better than it had been for years; she was able to walk about and perform her household duties. The movements of the joint were good and painless; it contained no fluid. Mr. Lockwood thought the membrane was still a little swollen. In connection with this case, the best manner of opening the knee-joint for the total removal of fringes was discussed. Another case of a similar character was likewise described.

Next some cases of arthrotomy in chronic osteoarthritis were described. These were undertaken because the chondrifical and ossified synovial fringes got betwixt the articular surfaces, either by having become detached or because of very long pedicles. One of these patients was in her seventieth year. Nevertheless, three weeks after four loose bodies had been removed from the joint she was walking about. In a second case, in addition to pedunculated cartilaginous fringes, a pedunculated fatty growth of the synovial membrane was taken away. In yet another case of osteoarthritis a pedunculated fringe was removed. The joint ceased to lock, but the operation was followed by a certain degree of stiffness due to the progress of the osteoarthritis. The avoidance of this complication was discussed.

Finally cases of excision of the internal semilunar fibrocartilage were mentioned. One was described in which the history four years after the operation showed that the result had been perfect. In a second case of removal of the internal semilunar fibrocartilage the history was brought down to three years after the operation. With the exception of the scar the knee-joint was normal. The patient led a most active life and considered the joint as good as the other, quite perfect in spite of the absence of the fibrocartilage. The third case was peculiar, having occurred in a woman. In this, again, the removal of the fibrocartilage, whilst curing the locking of the joint, was attended with no other appreciable effect.

SENILE ENDOMETRITIS.

J. Lorain (*La Revue Médicale;* quoted in *Annals of Gynecology and Pediatry*, May, 1899) says that one of the first symptoms of senile endometritis is a semipurulent yellow or greenish discharge, often streaked with blood, and occasionally offensive; the discharge is sometimes continuous, sometimes intermittent. Metrorrhagia is not rare, and is occasionally so marked as to give rise to what is described as the hemorrhagic form of the disease; the loss of blood is, however, rarely great, and never by itself constitutes a grave symptom.

The disease is usually but slightly painful, the subjective symptoms being limited to a feeling of weight in the hypogastrium and to sacralgia. Sometimes, however, the patient complains of smarting and itching about the vulva; in most cases this is due to the irritation of the discharge, but occasionally no signs of inflammation are present. Frequency of micturition and pain after the act are sometimes observed.

There is little tendency for the inflammation to spread to the Fallopian tubes, but this does occasionally take place. Perimetritis and parametritis are practically never found.

The uterus is usually found to be of normal size, mobile, but slightly tender; the speculum reveals a cervix more or less inflamed, of a deep red color, swollen and smooth. Cervical erosion is rare.

The course of the disease is essentially a chronic one; the symptoms become more marked after exertion and fatigue; but the acute or subacute exacerbations found in endometritis anterior to the menopause, and probably due to menstrual congestion, are not found in senile endometritis.

The general condition of the patient is always to some extent affected by the disease; loss of flesh, anemia, dyspeptic troubles, occasionally rigors and night sweats, and, in fact, a condition of cachexia more or less marked, are found.

The diagnosis of senile endometritis is of the greatest importance, owing to the resemblance its symptoms bear to those of cancer of the body of the uterus. The treatment depends essentially on an accurate differential diagnosis. If the disease is merely endometritis, medical treatment will always guarantee a cure. On the other hand, if the disease is cancer of the body, hysterectomy, at least in the early stages, is the only rational treatment, and the prognosis becomes grave, not only by reason of the dangers of the operation itself, but also because of the grave risk of a recurrence of the disease.

Treatment should have two ends in view: (1) To allow of the free escape of the secretions of the uterine mucous membrane; (2) the application of antiseptics to the interior of the uterus.

The free escape of the contents of the uterus is of special importance, since, as long as these are pent up in its cavity, no cure can be expected. Generally speaking, the dilatation of the cervical canal is best effected by Hegar's dilators; but cases arise in which the stenosis of the cervical canal is so advanced that the smallest dilator cannot be introduced; in such cases dilatation must be obtained with laminaria tents. It is generally sufficient when the passage of Hegar's No. 7 or 8 can be effected, but this will often require two or three sittings at intervals of twenty-four or forty-eight hours. After dilatation, one of the following solutions should be applied to the cavity of the uterus:

Creosote,
Glycerin,
Alcohol, equal parts of each.

Or,

Ichthyol, 10 parts;
Glycerin, 40 parts.

Or pure tincture of iodine should be applied.

These are introduced into the uterus by means of a flexible sound, the last two inches of which is surrounded by cotton-wool; this is then soaked in the solution and applied to the whole surface of the uterine mucous membrane. The treatment should be renewed two or three times a week, and in the intervals a drain of antiseptic gauze should be left in the uterus, a tampon of similar gauze being left in the vagina.

As the cervical canal tends to contract up again between the dressings, it will be found necessary to further dilate it from time to time.

The duration of treatment carried out according to the above principles will be found to be approximately from three to four weeks.

OPERATIVE TREATMENT OF GLANDULAR HYPOSPADIAS.

VON HACKER (*Beiträge zur Klinischen Chirurgie*, Band xxii, Heft 1; quoted in *Annals of Surgery*, June, 1899) recommends an operation differing considerably from the ordinary methods. The urethral orifice, together with its corpus spongiosum, is freed from its surroundings, the dissection being carried well backward. The glans is tunneled through, the urethra is pulled forward, and the meatus is sewn to the external surface. The advantages claimed for the operation are:

1. It does away with the necessity of operating in several sittings.

2. It insures greater certainty of union, other methods frequently requiring repetition of the operation and secondary measures for closure of fistulæ.

3. As there is an absence of any canal requiring to be covered over, a catheter *à demeure* is unnecessary. No subsequent constriction of the opening is to be apprehended.

4. The urethra remains surrounded by its corpus cavernosum, and the new external orifice by erectile tissue in a nearly normal fashion—the latter circumstance being highly desirable for the proper ejaculation of semen.

Reviews.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS; OR THE ACTION OF DRUGS IN HEALTH AND DISEASE. By Arthur R. Cushny, M.A., M.D. Illustrated. Price, $3.75.
Philadelphia and New York: Lea Brothers & Co. 1899.

The announcement that Dr. Cushny was about to publish a book on Pharmacology was hailed with interest by the American

medical profession, because those who are interested in scientific therapeutics recognize the fact that his training and experience well qualify him for the preparation of such a manual. The book has appeared, and we have given it an exhaustive and thorough examination; after doing this we wish to give it the highest praise which is in our power, and to express our sense of obligation to Dr. Cushny for having prepared so competent a volume.

After saying this, and with no intention of modifying it by what we may say further on, we shall consider ourselves at liberty to differ from the author in certain statements which are made.

The opening pages of the book, dealing with the general consideration of the subject of pharmacology and therapeutics, are admirable, although we are somewhat disappointed that under the section devoted to the chemical character of drugs more is not said about the relation of chemical constitution and physiological action. Of course, this subject is as yet almost an untilled field, and yet it is a very important one. We are interested to note the classification of drugs which has been made by this author, and while it is a classification instituted by older and more experienced pharmacologists, and somewhat modified by him, we think that like all other classifications which we have seen it is open to many objections. As an illustration of the fact that this classification is difficult, we find that the nitrites are classed under the heading of "organic substances characterized chiefly by their action after absorption." Surely the nitrites can hardly be called organic substances in the ordinary sense of the term, nor can formaldehyde, benzol, and similar substances come under this heading by any consideration except that of utility. We believe that the author recognizes this fact as well as we do.

The remarks made by Dr. Cushny in regard to the methods by which pharmacology and therapeutics should be taught seem to us singularly appropriate at this time.

It strikes us as somewhat odd that many of the drugs are classed under the names of their active principles rather than under the name of the crude drug; thus we cannot see why lobelia should be considered under the heading of lobeline, or tobacco under nicotine, or veratrum viride under veratrine. Surely the physiological action and therapeutic uses of veratrum viride in the form of a tincture or fluid extract are not in any way similar to those of veratrine, and many physicians who are in the habit of considering veratrum viride a valuable drug will not be satisfied with finding but two and a half lines devoted to its uses, nor believe in the statement that as the activity of veratrum viride is due to veratrine it may well be discarded from the Pharmacopœia. This statement is so utterly antagonistic to the opinion of many reputable practitioners that it does not require further criticism and may be considered as distinctly erroneous.

We do not think that under the consideration of antipyretic drugs sufficient emphasis is laid upon the fact that these drugs diminish the production of heat as well as increase the dissipation of it, neither do we agree with the author when he states that there seems to be no reason why the combination of the two methods—that is, cold bathing and coal-tar products internally—should not prove more efficacious than either alone. In this instance such a combination is distinctly deleterious in its influence. The great objection to all the coal-tar products in practice is that they destroy the patient's reaction. The greatest advantage in cold-bath treatment in all its forms is that it improves the patient's reaction, and the use of the coal-tar products simultaneously with the cold bath exposes the patient to internal congestions and deprives him of the physiological process by which he would not only resist the effects of cold but obtain advantage from it.

We also differ from the author very distinctly in the statement that in therapeutics digitalis never causes irregularity of the heart. Those who have had experience with digitalis when given in full doses and continued to the point of irritability very frequently find that it produces marked cardiac irregularity. Again, we do not think that the statement that digitalis does not influence the heart favorably through its effect on the pneumogastric nerve is correct, and the comparative statement that aconite, which stimulates the pneumogastric, does not improve the heart is not a fair comparison.

Finally, the statement that the action of digitalis is the same as ergot in stopping hemorrhages from small vessels may be correct, but neither of them is of any practical value, we believe, for this purpose.

In the consideration of saline cathartics nothing is said of their use in the treatment of peritonitis, which we think is an unfortunate omission, but we heartily agree with the

author in his statement that the hypophosphites are not the remedies which they are "cracked up" to be. We have long believed the usefulness of the hypophosphites in the treatment of disease is greatly exaggerated.

What Dr. Cushny has to say about the value of lithium for uric acid is not only of interest but exceedingly valuable, and it is evident that the lithia salts are by no means as useful in this condition as some persons would have us believe; in this we entirely agree with him.

Dr. Cushny states that lime salts are not likely to be of benefit in rickets unless it is due to lime starvation, a condition which is not likely to arise in a human being. In the treatment of phosphorus poisoning we regret to see he recommends the employment of turpentine oil, which in its ordinary employment we believe to be valueless. We do not think he emphasizes the value of permanganate of potassium sufficiently.

Credit is given for the introduction of calomel in the treatment of dropsy to Jendrassik, when it really ought to be given to Dr. John Kearsley Mitchell, father of Dr. S. Weir Mitchell, who as professor of practice in the Jefferson Medical College taught this use of calomel before Jendrassik was a practitioner of medicine.

While the bibliographical references which are appended to most of the articles show that the author has a wide knowledge of European pharmacological literature, and while it is true that American and English pharmacological literature is comparatively scanty, we regret that so few references to English and American researches are made. Surely some of them have been of sufficient value to have some influence upon the statements made in his book; but we can readily understand that as Dr. Cushny received his pharmacological training chiefly in a German university his acquaintance with German literature overshadows his acquaintance with that in other languages.

After these criticisms, which are criticisms of detail rather than of the whole book, there is nothing left but to reiterate the words of praise with which we began this review.

A sufficient amount of therapeutic information is not to be found in the volume to make it useful to the practitioner; and as we understand it Dr. Cushny did not intend to prepare a work on therapeutics, but did intend to prepare one upon pharmacology, and in this respect he has attained a noteworthy success.

MATERIA MEDICA, THERAPEUTICS, MEDICAL PHARMACY, PRESCRIPTION WRITING, AND MEDICAL LATIN. A Manual for Students and Practitioners. By William Schleif, Ph.G., M.D.
Philadelphia and New York: Lea Brothers & Company, 1899.

The book before us is a small octavo volume of about 350 pages, in which the drugs are classified in a manner closely resembling the classification of drugs adopted by H. C. Wood in his well known "Therapeutics;" indeed, in some respects it may be considered a condensed manual of that work. As is seen from the title, the author has made its pages cover a very wide field, but when one reads the book it is discovered that it deals with drugs chiefly, and to a very slight extent with prescription writing and medical Latin. Naturally the book follows very closely the teachings of Dr. Schleif's superior, Dr. H. C. Wood, and will doubtless prove popular with the students of the University of Pennsylvania and others, who will find in it much of the information which they desire.

ANNUAL REPORT OF THE SUPERVISING SURGEON-GENERAL OF THE MARINE HOSPITAL SERVICE OF THE UNITED STATES FOR THE FISCAL YEAR 1898. Washington: Government Printing Office, 1899.

The present volume is the twenty-seventh annual report of the Marine Hospital Service, and this is the one hundredth year of the existence of that service. The report is of unusual interest because it embodies a period in which our relationship with neighboring countries, in which a number of contagious diseases are endemic, has become more than ever intimate. Each year shows an increased activity in scientific effort among the members of this very valuable branch of the Government, and Dr. Wyman, the Surgeon-General, is to be congratulated upon the high standard and efficiency which the service has attained under his executive control.

A COMPEND OF DISEASES OF THE EYE AND REFRACTION, INCLUDING TREATMENT AND SURGERY. By George M. Gould, A.M., M.D, and Walter M. Pyle, A.M., M.D. Second Edition, Revised and Enlarged.

This is one of Blakiston's well known quiz compends, and is written not in the form of questions and answers, but in the manner in which a small manual is usually composed. It is needless to say that the authors, who are careful workers in everything which they undertake, have taken pains to make accurate every statement in its pages, and while it does not in any way attempt to present original characteristics, it is a first-rate brief guide to ophthalmic practice.

INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, U. S. ARMY. Authors and Subjects. Second Series. Volume IV: "D" to "Emulsions."

Washington: Government Printing Office, 1899.

This is the fourth volume of the second series of this work, which is of inestimable value to the people of this and other lands. It contains 9628 Author Titles, representing 4133 volumes and 8523 pamphlets; it also contains 8828 subject titles of standard books and pamphlets, and 28,316 titles of articles in periodicals.

When it is remembered that the library of the Surgeon-General's Office now contains 130,708 bound volumes and 220,839 pamphlets, its size and value will be appreciated.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

Dr. Short's paper to the Midland Medical Society on the "Treatment of Occupation Neuroses" is worthy of attention for his very common-sense treatment of these much abused disorders. His remarks on writer's cramp are particularly to the point. It is idle to enjoin complete rest to a class of patients for whom such is an impossibility for pecuniary reasons, and complete rest is only essential in the early stages, when pain is present. Such pain is best relieved by the local application of belladonna, and rest. After the relief of pain, the most important point is to keep up the nutrition of the muscles by passive movements and electrization, at the same time encouraging in the patient a confident hope of recovery, as in most of these cases a powerful mental influence is at work. Active muscular exercise of some kind should be insisted on, such as carpentering, or knitting, so as to maintain the power of the hand muscles, while at the same time giving relief from the actual work of writing. Care, too, must be bestowed on the actual mode of writing; this will usually be found to be cramped and throwing all the work on the small muscles of the hand. Writing from the shoulder should be studiously cultivated, and this can be best effected by writing large letters on a blackboard or on a sheet of paper on the wall; the position of writing necessitates then the use of the shoulder muscles. Twenty minutes of this exercise twice a day is sufficient at first. With these precautions carefully obeyed, some amount of writing may usually be permitted to the sufferer in his daily occupation. Here, too, much can be done by attention to details. The table should not be too high for the chair, or undue pressure will be exerted on the ulnar border of the forearm and irritate the ulnar nerve. A thick penholder is better grasped than a thin one, and it should not be unduly light, as this diminishes its momentum in writing. Ball-pointed or quill nibs are the best, but a quill pen is too thin for an easy grip. The study of shorthand is a very excellent training of the muscles of the hand, and may be of commercial value to the patient. It is a first-rate training of delicate movements, and it is a familiar fact that shorthand writers are singularly exempt from writer's cramp. Text-books dismiss the treatment of this distressing ailment with the magic word "Typewriter," but in the practical work of the office type and manuscript are seldom interchangeable. Over and above this, all such measures are indicated as promote well-being of mind and body.

The annual meeting of the British Medical Association at Portsmouth has come and gone. It has been voted on all hands a success, not perhaps in the sense that the Association might have wished, however. Statistics are sometimes misleading, but when I tell you that out of 900 members present at Portsmouth, only twenty-five were present at some of the sectional meetings, while the remaining 875 disported themselves on the waters of the Solent, you will agree with me that as a nation we no longer "take our pleasures sadly;" albeit the Association was established "for the promotion of medical and the allied sciences, and the maintenance of the honor and the interests of the medical profession." On the whole the interest of the meeting centered on the prevention and treatment of tuberculosis—a time-honored theme that in England has only recently been admitted within the pale of practical therapeutics. There was a great deal of interesting material in the Section of Pharmacology and Therapeutics, presided over by Professer Bradbury. Dr. Lauder Brunton dealt in his charmingly transcendental manner with headaches and their treatment. Migraine he ascribed to toxins circulating in the blood; in health these toxins were

rendered innocuous by the activity of the liver. We fancied that Dr. Brunton suggested that the reason why the head was most often affected was that commonly this was the seat of lowest physiological resistance. This is decidedly an unpleasant reflection, though Dr. Brunton specifies such minor and non-psychical defects as carious teeth and errors of refraction. The necessity of a major premise to give verisimilitude to his conclusion induced Dr. Brunton to assert that there was a form of "headache" which occurred in the abdomen, due likewise to general toxemia. In treatment, and therein we bow the knee to Professor Brunton, he urges the use of cholagogues, and more particularly of salicylate of soda—preferably in combination with bromides. Whatever is taken must be taken before the headache is fully established, as absorption by the stomach is then at a standstill, and no drug given by the mouth will produce any effect.

Dr. Burney Yeo followed with a very practical paper on "Intestinal Antiseptics." He cited Dieulafoy's experiments upon the bacillus coli as the scientific basis for their employment. Dieulafoy showed that the virulence of this organism was markedly enhanced by a suitable environment; in fact, the organism may be regarded as innocuous in the normal conditions of health. Logically, then, changes of environment, such as may be effected by antisepsis, should serve to modify the virulence. Incidentally Dr. Yeo alluded to the value of antifermentatives in the treatment of many disorders of digestion, and the value of intestinal irrigation of the bowel with sterilized water in cases of summer diarrhea. In this country Dr. Yeo is rightly regarded as the pioneer of the antiseptic treatment of typhoid fever, and those who have seen his results with chlorine water and quinine will certainly be loath to relinquish this method. Dr. Yeo has always maintained that the use of chlorine water as a routine method in all cases of typhoid fever is absolutely unscientific, and very harmful. The virulence of certain cases of typhoid fever appears to depend on the associated activity of other putrefactive organisms; on the virulence of these chlorine water has a very marked effect, deodorizing the excreta and lowering the septic fever in a marked degree. In mild cases, where the fever is low, no conceivable advantage can be derived from chlorine, which has no controlling influence over the activity of the typhoid organisms; moreover, the chlorine mixture is apt to irritate the stomach and interfere with its function, just when its activity is needed unimpaired. In certain indefinite febrile affections pointing to intestinal disorder, Dr. Yeo advocated the employment of thymol by the mouth, and irrigation of the large bowel with eucalyptol, olive oil, and soap and water. In the early stages of typhoid fever Dr. Yeo recommended the use of calomel and salines. Salicylate of bismuth and carbolic acid were both of use in appropriate cases. Salol he had found disappointing, or rather uncertain in its action.

Dr. Hugh Walsham made a communication on some cases treated with erythrol tetranitrate. This drug, it will be remembered, was introduced to the public a few years ago by Dr. Bradbury, the President of the Therapeutic Section. In some cases it is certainly more effective than nitroglycerin, but it has scarcely received the attention it deserves from some quite unfounded fear of its explosive properties, based on its abuse in one or two instances. Dr. Walsham pointed out that this danger could be absolutely forestalled by giving the drug in chocolate tablets. He had found it of use in angina, in Raynaud's disease, and in the sleeplessness of chronic interstitial nephritis. Professor Bradbury confirmed these observations and mentioned incidentally that he had given a patient as much as one drachm twice a day.

The papers by Dr. Schiff, of Vienna, on "The Use of the X-rays in the Treatment of Skin Diseases," and by Dr. Hall Edwards, of Birmingham, on the "Therapeutic Effects of X-rays on Lupus," were both of very great interest. As long ago as 1896 Dr. Freund, of Vienna, used x-rays successfully in the treatment of hypertrichosis, and this had encouraged Dr. Schiff to test its efficacy in lupus and other skin diseases, as the active agent of the x-rays, whatever it may be, undoubtedly penetrates to the deeper layers of the skin; by graduating the strength of the x-rays the resulting inflammation could be increased or diminished at will. Dr. Hall Edwards regarded the resulting dermatitis as of the nature of an electrostatic burn. The inflammation appeared to cause the root of the hair to separate from the bulb, while the changes set up in the tissues resulted in the conversion of chronic granulations into normal connective and scar tissue. There can be little question from experiments with the x-rays on bacteria that the effect is not bactericidal in character. Dr. Schiff urged on these grounds the efficacy of the x rays

(1) in affections in which the removal of hair for as long as possible was advisable—hypertrichosis, trichorrexis, sycosis, favus, and herpes tonsurans; (2) in cases where a change of the tissues in the lower layers was necessary—acne follicularis, acne rosacea, lupus vulgaris, lupus erythematodes, eczema chronicum, elephantiasis Arabum, and œdema chronicum. Dr. Hall Edwards's paper related to the good results he had found in the treatment of lupus, and these were strikingly attested by the photographs of actual cases.

In the Section of Surgery Mr. Berry's communication on "Seventy-two Consecutive Cases of Goitre Treated by Operation" was received with favor, as from one who has had a very wide experience of these cases. In thirty-three of the cases one lobe of the gland with its capsule had been extirpated, and in thirty-nine adenomata had been enucleated from the thyroid. Mr. Berry at the outset emphasized the fact that many cases of goitre are curable by simple medicinal measures, and this knowledge should give pause to a hasty recourse to operation; and furthermore, the operation should only be performed under exceptional circumstances for mere deformity. Dyspnea was by far the most common plea for interference, and dyspnea tended to occur in two main classes of cases: first, in rapidly growing parenchymatous goitres, in which extirpation is necessary; and secondly, for goitres where the enlargement was low down behind the sternum. Mr. Berry was of opinion that where there is no dyspnea a general anesthetic may be given, but that when dyspnea is present a local anesthetic should be employed. I can confirm Mr. Berry's commendation of the local anesthetic, having more than once seen his operations under a local anesthetic. Mr. Berry declared in favor of the single oblique incision, though the transverse incision leaves a less noticeable scar, because of the greater ease of operation. It is desirable to divide the infrahyoid muscles, not immediately underneath the skin incision, as this endangers adhesion of the cicatrix; it is well also to suture the divided infrahyoid muscles.

In the Section of Ophthalmology Dr. Hinshelwood, of Glasgow, read a paper on "The Use of Euphthalmine as a Mydriatic." Two or three drops of a five-per-cent solution produced dilatation of three hours' duration in twenty minutes, and the effect can be even more rapidly produced by previously instilling a single drop of a one-per-cent solution of holocaine. Euphthalmine has the advantage of being much cheaper than homatropine. Mydrine resembles euphthalmine in action, but is a very expensive drug.

Reports received from Sierra Leone from the expedition sent out by the Liverpool School of Tropical Medicine state that Major Ross has succeeded in proving, as he had surmised, that the malarial organism is propagated by a particular species of mosquito. So far he has succeeded in demonstrating the presence of the organism *in situ*, and has located the haunts of large colonies of the offending mosquito. The next step appears to be to see how far sanitary measures can serve to stamp out the existence of the offender.

The chair of physiology in University College, London, has now been filled by the appointment of Dr. Starling, a young candidate, but one who has already done much original research work.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

In a recent number of the *Presse Médicale* a treatment of cholera infantum, based on the works of Baginski, Hutinel, Marfan, Sevestre, Thiercelin, and Lesage, is given at length. The author of this article, Dr. Plicque, began by saying that the treatment of this affection is very urgent, and as much so as in a case of appendicitis. Infection, and consequently intestinal poisoning, are the principal factors of what is called summer disease. There exist two distinct varieties of this affection—the febrile form, accompanied by fever, tympanites, a red, dry tongue, which has been studied by Dr. Sevestre, physician of the children's hospital; and the algid form, due in some cases to the preceding one, and ending fatally in a great many cases.

The most important part of the treatment is the diet to be followed. No milk should be given for twenty-four or forty-eight hours, and as the thirst is considerable, water either boiled or sterilized should be given in sufficient quantity. A good mixture is very weak tea with a little iced champagne. Black coffee in small quantities is also useful. Malaga wine with boiled water, and very weak grog prepared with tea, are also useful. Drs. Despine and Picot, of Geneva, have given as much as thirty to sixty grammes of cognac in tea or boiled water. When the condition

is not serious, chicken broth is a good preparation; albuminous water is not so useful as has been thought, as it may ferment. Rice- or barley-water is an excellent preparation, but is often badly prepared. Dr. Marfan has given a good recipe: two teaspoonfuls of barley should be boiled in half a liter of water, then passed through a cloth. About a liter to a liter and a half of liquids should be given daily. About the only drug which has seemed to have any effect is lactic acid. Hayem and Lesage recommend giving every half-hour a teaspoonful of the following solution:

Lactic acid, 3 grammes;
Quince syrup, 25 grammes;
Distilled water, 100 grammes.

The solution should be iced, and after each spoonful some water should be given. After three hours the lactic acid solution should be given only every hour. This preparation should be withdrawn as soon as milk is given again. Intestinal antiseptics are useless; calomel is sometimes useful in fractional doses of one centigramme every three hours. Opium has its defenders, and Despine and Picot consider it as their reserve drug. They give the following solution:

Paregoric,
Lactose,
Spirits of melissa, āā 5 grammes;
Lactic acid, 1 gramme;
Infusion of tea, 100 grammes.

Teaspoonful every two hours until an effect is produced.

Lesage, who has written the article on this affection in the Treatise on Children's Diseases, edited by Comby and Marfan, recommends applying a wet compress on the abdomen. Baths at a temperature of 38° are often useful, but the temperature, according to Lesage, should vary with that of the patient, warm baths being given when there is hypothermia, and cold in the contrary case. Washing out of the stomach and the intestines is a useful method in hospital practice, and an effort should be made to use it in ordinary clientele. Hypodermoclysis with Hayem's or the normal saline solution produces a most excellent result in some cases. From 150 to 300 grammes may be injected daily in five or six injections. Injections of caffeine are also sometimes of benefit.

At a recent meeting of the Society of Neurology Drs. Maréchal and Glorieux gave their results in the treatment of sciatica by copaiba. The usual dose is eight to ten capsules. Dr. Crocq has also published recently in the *Journal of Neurology* an essay on the treatment of sciatica, and wrote favorably concerning ichthyol. In twenty cases of sciatica, fourteen were cured, and there were four cases in which a noted improvement was observed. There were two failures. The mode of administration consists in giving six to eight capsules daily containing ten centigrammes, and using a liniment made with the following formula:

Ichthyol, 50 grammes;
Glycerin, 20 grammes;
Water, 30 grammes.

Certain cases dating from a year were completely cured in this way.

The Dreyfus trial at Rennes, which is exciting so much attention on both sides of the Atlantic, has had its medical aspect too. My readers have already heard of the dastardly attempt that was made on Labori by some miscreant who has not as yet been discovered. By the best of chances there happened to be at Rennes Dr. Reclus, one of the most celebrated Paris surgeons, and Dr. Brissaud, a well known neurologist. It was found on examining the patient with the Roentgen rays that the ball after having pierced the muscles of the vertebral region had flattened itself against the transverse process of the fourth vertebra. Dr. Doyen, who has acquired a world-wide reputation, thanks to his efforts, packed up his instruments and took the train for Rennes as soon as he heard of the accident to his good friend Labori. On the plea of his being a friend, and notwithstanding the fact that he had not been called by the family, he endeavored to inquire into the condition of the patient more than Dr. Reclus thought was discreet. There was a somewhat acrimonious dispute, and Dr. Doyen's case was published in the *Figaro* in an article where the old methods of leaving a projectile were criticized and Dr. Reclus placed in an awkward position. Thereupon the family of Labori published a few lines in which they showed that Dr. Doyen had not been called in, and that Dr. Reclus inspired them with perfect confidence.

At the recent gynecological congress held at Amsterdam, a few words of Dr. Doyen's were taken up in a way which showed that he is not looked upon favorably by the Paris school of surgeons. There is always a certain rivalry between the surgeons of the Paris hospitals and the provincial surgeons, and Dr. Doyen, who left Reims recently to establish himself in Paris, has carried the battle into the enemy's camp.

—THE—

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Original Communications.

ON THE CHOICE OF OPERATION FOR STONE.

BY JOHN H. BRINTON, M.D.,
Professor of the Practice of Surgery and Clinical Surgery in the Jefferson Medical College of Philadelphia.

(*Continued from page 673.*)

SUPRAPUBIC CYSTOTOMY.

Of all modern operations, scarcely one has grown more rapidly into favor than this form of cystotomy. Although an old procedure, and one long since regarded as dead and laid to rest, it has of late years been fully resuscitated and so modified that it ranks as one of the most trustworthy efforts of modern surgery. As now practiced, and with the saving precaution of antisepsis, the old-time peril of peritonitis, so dreaded and so fatal, has been practically done away with.

Familiar as this operation is, it may perhaps be permissible to say a few words of the suprapubic, or high, cystotomy as we now do it.

Before operation, the patient should be placed in a modified Trendelenburg position, with his hips and pelvis raised. The dependency of the intestinal coils is thus favored, with a corresponding retraction of the upper vesical fold of peritoneum. A degree of im-

munity against wounding the peritoneum is thus afforded.

The bladder is then well distended with water—by some surgeons air is preferred; an india-rubber bag should then be inserted into the rectum, which when filled with ten or twelve ounces of water will lift the summit of the bladder upward and forward above the pubis; here it is entirely accessible to surgical manipulation. This injection should be made gently, so as to avoid rupture of the rectum, an accident which has occurred. A longitudinal incision two and a half inches long should be made through the integument over the lower fourth or fifth of the linea alba, and carried well down on the pubis so that the top of that bone may be readily felt. The incision is then deepened between the muscular structures upon either side until the prevesical fat above and behind the pubis is reached. This should then be divided and separated in the median line until the front of the bladder is exposed, care being taken not to wound the numerous deep veins on either side. If these be cut or torn, such bleeding may occur as to prevent the recognition of tissues, and retard the operation. The superior vesical fold of the peritoneum must now be carefully looked for, and if seen, it must be carefully retracted upward. Should it be accidentally wounded, the cut must be at once stitched up, before any opening is made into the bladder.

The front surface of the bladder, when reached, may be readily recognized by its pinkish color, and by its rotundity of distention under digital palpation. A tenaculum should then be inserted through its walls, the operator being sure that the peritoneal fold is out of the way and intact. The handle of the tenaculum should then be given to an assistant, who with it draws the bladder to the upper angle of the wound. An incision is then to be made well upon the anterior and upper convex surface of the bladder. This opening should be high up, so that if fistula should ultimately follow, the level of the contained urine may be at the highest line. This would give the greatest permanent capacity of the bladder, and will greatly contribute to the comfort of the patient in after life.

The incision should be from three-quarters of an inch to one inch in length, sufficiently large to permit the introduction of the forefinger and the exploration of the bladder. If the calculus be large, the incision may be extended to any necessary length. The hold of the transfixing tenaculum should be always preserved, so as to prevent the falling back and collapse of the bladder, and premature escape of its contents, a source of hindrance to further exploration. By some surgeons a looped ligature passed through the bladder wall by a curved needle is preferred to the tenaculum.

If any stone be found, it should be removed by the forceps. The bladder should then be washed out by the antiseptic douche, and thoroughly explored. In many instances, where it is advisable, the examination of the bladder may be assisted and made exhaustive by the use of reflected or electric light.

After operation urinary infiltration may be prevented by inserting through the wound a rubber drainage-tube of a quarter of an inch caliber. This may be rounded at the vesical end, and fenestrated, and may be stitched to the edges of the integumental wound. It should be long enough to empty by its external end into a receiver. If at any time it should become choked, the obstruction may easily be removed by injection of air or water, from a rubber bulb or small syringe. The retention of this drainage-tube need not be prolonged; it can usually be taken away at the end of two or three days, and the escaping urine may be received on pads of gauze, which should be changed every four or five hours. The position of the patient in bed may be at his pleasure—recumbency either on his back or side. This may be left entirely to his own wishes. The old idea was that to prevent infiltration he should be kept strictly on his back, especially after the drainage-tube had been taken away. This I disregard, and I have never observed any evil consequences to follow the assumption by the patient of the attitude in bed which is most comfortable to him. On the contrary, when he rests at will, he experiences less bladder irritation, sleeps more readily and uninterruptedly, and his convalescence is in every way more speedy and satisfactory.

The healing of the external wound usually takes place rapidly, by granulation on its sides. The incision in the bladder gradually contracts, and about the tenth or twelfth day, and sometimes earlier, the urine begins to flow through the urethra. By some surgeons a soft catheter is inserted into the bladder, immediately or early after the operation, but this usually is not necessary, as the drainage through the wound takes care of itself, and the patient is much more comfortable if spared the annoyance of a retained

catheter, ever an obnoxious foreign body, and especially so after vesical operation. Occasionally the closure of the wound of operation is tardy, a fistula is threatened, and the patient becomes much disturbed in mind at the very idea of an open urinary track. It is then the duty of the surgeon to allay the patient's apprehensions and to calm his mind. My experience of such cases is that generally the fistula eventually heals. Even should it remain open for some time, the occurrence is not to be deprecated, for the bladder is as it were under tolerant examination all this time.

Should any tendency to fresh stone formation exist, and this is not uncommon in old bladders with enlarged prostate and phosphatic urine, the presence of these new calculi can certainly be detected through the fistulous opening, and they can readily be extracted through the same channel. And here it may be remarked that when prostatic enlargement exists to such degree as to form a bar to the extrusion of urine through the internal meatus and by the urethra, it is, I believe, a better and safer surgery to preserve the fistulous abdominal opening as a natural channel, and so be able to ignore and discard the hypertrophy of the prostate gland. This really ceases to be of any importance when the patient has once learned to draw his water by his new channel. It has been said that there is a constant leakage, or urinary incontinence, by the newly formed urethra. This objection is, however, rather theoretical than otherwise. Practically it will be found that if the incision in the bladder be made on its front surface, as high up as possible, the urine will subsequently accumulate until the bladder is filled up to the level of the opening, and that no leakage can or will occur until this water level is reached. Moreover, it is often the case that before any leakage occurs the patient will experience a sort of premonition not unlike that which precedes normal micturition. He can then introduce his short catheter through the artificial canal.

Dangers of Suprapubic Method.—The vital question connected with this operation is that of its danger. Its inheritance from the past has been accompanied by a suspicion of those perils, with which before the date of antisepsis and laparotomy the incision of the belly and peritoneum was then fraught. Yet so perfect is the technique of the present suprapubic cut that the occurrence of the once dreaded peritonitis need no longer be feared. Nor is there any danger of serious bleeding, for even if the prevesical veins be injured the bleeding would only be sufficient to obscure and delay a little the later steps of the operation. The peril of shock is at a minimum, nor need it be feared, if we bear in mind that the peritoneal cavity is not opened; nor is there the shock of bleeding. The only danger which can threaten the patient must depend upon preexistent pathological conditions of the associated organs—the prostate, ureters, and kidneys. The same conditions, however, would influence equally any surgical vesical interference. Clinical experiences and the observation of results, rather than mere academic discussion, must after all is said be accorded their full weight in judging of the value of this operation. It is well, too, that the consensus of the opinions and operative preferences of individual surgeons should be gathered, rather than a mere bald statement of heterogeneous statistics.

My own conclusion, based upon my own cases and upon my observation of the more numerous experiences of my colleagues and friends, is that this operation is accompanied by scarcely any shock, and that it is free from peril to a remarkable degree. I have been so fortunate as never to lose a patient upon whom I had performed it. I have seen only one fatal case, and this was operated on by a most expert surgeon, under urgent conditions. The patient was a very old man, wearied by long travel and unceasing pain. When brought to Philadelphia he was suffering unbearable agony, which demanded immediate relief. The operation was one of absolute necessity, which could not be deferred. The bladder was found to be in a softened and ruined state, and the patient died two or three days afterward.

The advantages of the high operation may be thus briefly stated:

1. The ease with which it can be performed.

2. Its thoroughness, affording as it does an easy extraction of the calculus, and also the opportunity for full digital and ocular examination of the interior of the bladder. The encroachment upon the bladder cavity of prostatic growths and other tumors can also readily be detected. If the operator so decide, these can be excised or removed. If a small calculus be hidden by a prostatic bar, or by any fold of mucous membrane, it can surely be felt and taken away.

3. In fact, the high lithotomy offers a greater degree of thoroughness and opera-

tive certainty than any other method for the removal of stone from the bladder.

4. Good drainage can be effected. If desired, an assured immunity from prostatic trouble can be obtained by keeping the cut open and by the establishment of an artificial urethra.

5. The constitutional involvement is but slight, and there is little danger of shock or septic poisoning, or other general accidents.

6. The convalescence is speedy and the after cure satisfactory.

7. The operation is properly indicated at all ages of adult life, and also, as shown by clinical experience, in boyhood before puberty.

PERINEAL LITHOTOMY.

The varieties of these operations have been before the profession from time immemorial. For the last century and a half the single lateral, bilateral, and median methods have been practiced with a perfection of detail to which nothing can be added. The perils attendant upon all these operations have been fully recognized, and nothing further need be said in this direction. A perineal incision into the bladder has always been regarded as a last resort, to be submitted to by the patient in full appreciation of the possible chances of a bad result. It has ever been looked upon as a major operation, with all the accompaniments of shock, hemorrhage, exhaustion, peritonitis, and septic infection. The death-rate therefore has been high. Almost the only advantage claimed for it to-day is the dependent drainage. This, however, seems to be a questionable advantage, involving as it does a greater risk of local blood contamination from decomposing urine and pus secretions.

From the foregoing considerations it seems fair to conclude that litholapaxy is eminently the proper operation in the case of a stone, either small, or soft, or both; and where there is reason to believe that the bladder and associated urinary organs and prostate gland are not seriously diseased, and where, too, the general constitutional condition is fair. Where the contrary obtains, especially when the prostate gland is evidently largely involved in its middle lobe, and when the symptoms of urinary retention are marked by the presence of residual urine in greater or less quantities, I believe that the operation is not indicated. These symptoms, and particularly excessive vesical irritability and highly phosphatic and purulent urine, must lead one to suspect the presence of a small, rough calculus, concealed by an internal prostatic projection. In such cases it seems that the high operation is greatly to be preferred. And here it may be added that even in cases where litholapaxy seems proper, it is an operation for a trained and experienced specialist, rather than for the general surgeon. At all events the operator, whoever he may be, will do well to investigate for himself the mechanical conditions which accompany sudden bladder distention. I would thus limit decidedly the practice of litholapaxy, and turn rather to the suprapubic operation, which will have, I believe, a wider application in the future, far wider perhaps than in the past. It is, in fact, a procedure readily performed and which is devoid of great and sudden perils. As far as modern experience goes, it is free from that shock and that unexplained exhaustion which so often ambushes the operator by other methods.

I have met with many who hesitate to adopt the suprapubic operation, but I have met with none who could fortify their opposing convictions by their own clinical experience. Their disinclination for this operation would appear to be a relic of the past. I have fully shared this feeling, and I would scarcely have thought that my views could undergo so marked a change in this matter. However, I believe that suprapubic lithotomy is the preferable operation in most cases of stone, *excepting* for small or soft stones, and under the circumstances referred to, in which litholapaxy is doubtless indicated.

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*WHAT WE CAN DO FOR CASES OF SQUINT.**

By Edward Jackson, A.M., M.D.,
Denver, Colo.

In no department of medicine or surgery is it more important to accurately adapt our therapeutic measures to the requirements of the individual case. He who treats squint without painstaking discrimination leaves in his path a succession of patients disappointed or made worse by their experience with him, and who must of necessity advertise his incompetence so long as they live. Experience of haphazard operating has made the community rather shy of squint operations; al-

* Read before the Pueblo County Medical Society Sept. 19, 1899.

though where properly advised and properly performed, they are among the most reliable and satisfactory of surgical procedures.

In the first place there are cases of marked *apparent squint* in which actually no squint is present. We judge of the direction of the visual lines by the direction of the cornea. Usually the visual line passes through the center or a little to the nasal side of the center of the cornea. When it does so the eye seems to look properly at the point of fixation. But when the visual line passes through some other part of the cornea the eye seems to be directed elsewhere, although it may fix accurately the object looked at. About the first thing to be done for a case of apparent squint is to try the fixation of each eye separately; to find how the eye does turn when it fixes a given point, and if it really is squinting when it appears to squint.

These cases of apparent squint should not be dismissed without a careful explanation of their real condition, and the uselessness and harmfulness of applying the treatment for squint to eyes that really see normally together, and only appear to deviate. If you fail to make his condition clear to such a patient, he will pretty certainly fall into the hands of some one who will offer to do an operation and promise relief. I have known a young woman who had perfect binocular vision, with a trace of esophoria, treated by a prominent ophthalmic surgeon for a year with prisms, and an operation suggested for a supposed divergent squint, simply because one cornea was markedly displaced outward, giving the appearance of squint, although the eyes were properly directed.

COMMENCING SQUINT.

The time to do most good by the treatment of squint is at its beginning. The wise caution against early operation means that operation should be a last resource, not the first one. It is not that operation is capable of yielding better results in squint of long standing, but that operation is only necessary when a deviation has become comparatively permanent; and it can only be intelligently undertaken when certain points have been carefully investigated, and the influence of other measures has been faithfully tried.

No case of commencing squint should be kept untreated by the advice to wait in the hope that the child may "outgrow" it. The probability of outgrowing a squint, and the rapidity and completeness of outgrowing it, depend chiefly on the intelligent care and treatment of the case. A few squints are outgrown without any especial care. A great many more would be outgrown—that is, gradually overcome and recovered from—with proper early attention. The possibility of outgrowing it is the strongest reason for giving every case of squint the earliest attention, in order that it may not become fixed, and so mar the development of the function of binocular vision that complete restoration will become impossible.

To cut short a commencing squint the most generally effective measure is *the wearing of lenses.* Convergent squint commonly begins before six years of age, and hyperopia is often an important factor in causing it. Divergent strabismus, usually arising in connection with myopia, which is commonly acquired during school life, begins later. Even where the error of refraction is not the only cause, or the chief cause, of the squint, its influence at the time the squint is developing is always unfavorable, and should be removed if possible.

Prior to the development of skiascopy the exact measurement of errors of refraction was not possible until the child reached an age to respond satisfactorily to the subjective tests. Hence the correction of errors of refraction was too inexact and uncertain, at the time of commencing squint, to be of much practical value. A few cases were successfully corrected; but the results of inaccurate estimates of the refraction in other cases were such as to destroy confidence in the chance of relief by lenses. Now, however, we have in skiascopy a method of accurately correcting errors of refraction during the formative period of squint, when such corrections are of the greatest value; and such corrections should be employed in the great majority of cases. I have prescribed convex lenses, and had them worn with the greatest benefit before the age of three years. Priestley Smith has given them at the age of fourteen months. There is little difficulty in having glasses worn by very young children. The eyes can be kept under a mydriatic, and if there is a decided need for the lenses the child very quickly realizes that it sees better with them. It accepts them as a matter of course, long before its elders have recovered from their amazement or ceased to condole on its misfortune. It is quite possible by the wearing of lenses until the tendency to squint has been overcome, and the function of binocular fusion thoroughly established, to render the child safe from a recurrence of

the squint, even if the glasses should not be worn constantly at a subsequent period.

In regard to lenses for the correction of squint, the rule to correct all the ametropia is imperative, and the glasses must be worn constantly. Then the mounting of the lenses must be carefully looked after. The wearing of strong lenses with the optical center of one slightly higher than that of the other, giving the effect of a prism base up or base down, might render binocular vision impossible, when the whole purpose was to render it easy and certain. Decentring and prismatic combinations may be needed to further this purpose of the lenses, to promote binocular vision.

The placing of one or both eyes under *the influence of a mydriatic* is commonly mentioned as a therapeutic resource in commencing convergent squint, and properly so. But it has a usefulness quite subordinate to that of lenses correcting hyperopia. It may be used in both eyes, to prevent all efforts at accommodation, with which excess of convergence is apt, at first, to be closely associated. Or it may be used only in the eye that is noticed to fix habitually, to blur its vision, and compel the patient to use the eye he is inclined to let deviate. For this latter purpose it will do no good if the vision in the deviating eye be so defective as to be worse than the other when under the mydriatic.

If atropine is used at all, it should be carefully and regularly instilled so as to keep the eye fully under its effects. The pupil may seem to be pretty well dilated, especially in a child, when there still remains a good deal of accommodative power; and the simple weakening of the accommodation may provoke increased accommodative effort, and with it increased convergence, thus doing harm rather than good. For such a purpose atropine is the mydriatic to be preferred. The briefer influences of the others, with their greater liability to cause symptoms of mydriatic intoxication, render them distinctly inferior for this service.

The use of the atropine is generally but a temporary measure, to hold the tendency to excessive convergence in check, while the case is being studied and glasses adjusted; or until the child becomes accustomed to the lenses and learns to see through them, giving up his excessive efforts at accommodation. In a few cases it may be worth while to continue the use of the mydriatic longer, but generally this is the extent of its usefulness.

Next in the order of practical usefulness, of the measures generally applicable in commencing squint, is the *occlusion of the better eye*, the fixing eye, forcing the child to use the one which seems inclined to deviate. This will aid in developing the power of using an eye that is congenitally imperfect, and will prevent the formation of a fixed habit of disregarding the images formed in it. It is most beneficial in cases of temporary paresis of one or more of the ocular muscles, preventing the establishment of a squint before the affected muscle recovers sufficient power to insure normal ocular movements.

Ocular palsies are not nearly so rare among children as the published records might be taken to indicate. They are a good deal neglected. The child complaining of seeing things double, unless he has very intelligent or timid parents, is apt to be told not to think about such things, or to look so he will not see double; and as diplopia very quickly ceases to be annoying in young children, nothing more may be thought of the matter until a decided squint has become permanently established. Most paralytic squints tend to become partly concomitant, and it is certain that a portion of the cases that are subsequently brought to our notice as concomitant squints have such an origin.

The especial liability of diphtheria to be followed by paralysis is well understood. But often the affection of the eye muscles does not become evident until several months after the diphtheritic attack; and it may follow a mild attack that has been regarded as a simple sore throat and quite forgotten. Any indication of diplopia should be attended to. Satisfactory tests as to the condition of the ocular muscles can be made on quite young children. If there is evidence that, with apparently good eyes, the child is disposed to habitually use one and allow the other to deviate, the regular exclusion of the fixing eye, by a bandage or a closely fitting opaque shade, should be resorted to, until a careful investigation of the condition can be made and other effective treatment adopted.

The partial exclusion of one eye so that the patient will be compelled to turn the eyes in a certain direction might be of service in some cases of paretic ocular muscles; but it is doubtful if it should be mentioned among really practical measures. Certainly the importance sometimes attached to it is quite exaggerated.

It is perhaps hardly necessary to remind you that the *treatment of the general condition* of the patient is an important matter in com-

mencing squint. Of those cases that cannot be traced to any distinct paralysis or paresis of a particular muscle, a large proportion arise during periods of distinctly impaired health. It would look as though the extremely complex coordinations required for perfect binocular adjustments were easily overthrown or prevented, when the central nervous system was not in its best condition. Hence it may be of capital importance, while taking care to make the binocular adjustments as easy as possible, and to prevent the establishment of any vicious method of using the eye muscles, to hasten in every way the recovery from a temporary condition of depression, in which the coordinating nervous system is unequal to the tasks laid upon it.

ESTABLISHED SQUINT.

No case of curable squint can be regarded as absolutely established; and when our more radical measures have disturbed the accustomed condition, any of the procedures applicable to commencing squint may render important service. But there are certain methods of treatment that only become applicable when the deviation has reached a comparatively established and fixed condition.

Most important among these are *operations upon the eye muscles*. These operations effect a more or less permanent alteration of the relations of the eyeball to surrounding structures, and are, therefore, only justified by a false relation of corresponding permanence. Thus operation is not justified by a paralytic squint which only occurs when the eyes are turned in a certain direction, or an intermittent squint which is part of the time entirely absent. In a squint that is always present, but variable in amount, we must first by lenses, or a mydriatic, or in some other way, eliminate the variable factors before we can attack the permanent factor to the best advantage by a permanent alteration in the relations of the eyeball. Neglect of this precaution has done much to bring squint operations into merited disrepute.

I shall not now go into the technique of the squint operations, but briefly consider them in certain classes. We have first *tenotomy*, which seeks to lessen the influence of the tenotomized muscle upon the movements of the globe. It is at once the simplest and the easiest of our operative procedures, and yet the most likely, when improperly undertaken or performed, to cause serious permanent harm instead of benefit. It is the operation that is liable to be followed subsequently by unsightly deviation in the opposite direction.

Next we have *advancement*, designed to turn the eye more in the direction of the muscle operated upon. It is comparatively free from the danger of turning the eye too far, so that it will deviate in the opposite direction. But it is more tedious and difficult than tenotomy, and followed by greater reaction and slower healing.

Then we have extensions of tenotomy by the *division of accessory bands;* and extensions of advancement by the *advancement of tissues adjoining* the tendon, as the capsule of Tenon and the overlying tissues. There are also subsidiary measures like the insertion of a stitch, which is tied so as to retain the eye continuously in the desired direction. The maximum effect is obtained by doing a tenotomy on one muscle and an advancement on its antagonist.

Appropriately chosen and properly executed, there are few operations in surgery that give more uniformly satisfactory results than those on the eye muscles. Still the exact effect of a given operation cannot be certainly predicted; and the most perfect results are only attained when the operation is supplemented by other measures.

A supplementary method of practical value is practice with the *reading-bar*. This consists of a light strip of metal, wide enough to cut off so much of each printed line from each eye as to prevent the reading of the whole line by either eye alone. It is placed far enough from the page (two and a half or three inches) to allow each eye to see the part of the line cut off from the other. It is supported in position by a base held against the page by one thumb, the base being connected with the bar by an upright perpendicular to both.

The reading-bar is to be used when there is a continuous squint, or when, as after a squint operation, the proper coordination of ocular movements is not established. It compels fixation with both eyes for the reading of each line. If the two do not fix together, the deviating eye has to be brought up to the position of fixation each time the reading-bar prevents the fixing eye from reading farther. The tendency is to accustom the deviating eye to the practice of fixation, and to induce it to fix with the fixing eye, to avoid the interruption that would otherwise be caused in the reading.

The great advantage of the reading-bar is that it gives the required training while the patient is engaged in an ordinary occupation or amusement. Other exercises of the sort, as the stereoscope applied to the orthoptic training of the eye, are only available as special tasks quite aside from the ordinary use of the eyes. On that account they are certain to be neglected after a time, unless the patient remains under the regular supervision of the surgeon, and makes a business of perfecting the cure of his squint. The usefulness of the reading-bar is limited for the treatment of commencing squint by the common inability of such young patients to read.

An *orthoptic exercise* that any patient can practice for himself, and which may be of value after a squint operation, as it is in cases of ocular paralysis, is that of holding a finger or a lead-pencil in some part of the field where fixation is easy, and moving it slowly to a part where it is more difficult. Thus for weakness of the right external rectus it can be held first on the left and then moved gradually over to the right; or for failure of convergence (relative divergent squint) it may be held first at a distance and then gradually approximated to the eyes. Even a young child may be induced to engage in the game of keeping the pencil single as long as it can. When in spite of the effort the pencil appears double, the effort is given up, and the gaze turned elsewhere.

The usefulness of *prisms* in the treatment of actual pronounced squint is so limited that their employment need not now be discussed. They are valuable chiefly in cases of vertical squint or of paralytic squint.

I have reviewed briefly our principal resources for the treatment of squint. What can we accomplish with them? For apparent squint we can do nothing. The possessor of this defect enjoys all the advantages of binocular vision, but he suffers from a cosmetic defect, sometimes very annoying, but incurable without the sacrifice of binocular vision.

Complete permanent paralyses of the orbital muscles, whether congenital or acquired, and particularly those of muscles supplied by the oculomotor nerve, are only capable of benefit to the extent of reducing the deformity and rendering it less offensive. Fixed defects of the coordinating centers, generally having a basis of congenital anomaly, but sometimes due to an abnormal development caused by squint, are also incapable of complete relief. This class includes some of the cases of squint with so-called amblyopia exanopsia, and the rare cases of "antipathy to single vision."

Great elongation of the eyeball renders some cases of squint with high myopia also incapable of complete correction.

But after all these are set aside, there remain the great mass of cases of squint, more or less concomitant, that we can completely relieve from noticeable deformity, and to whom we can give more or less of the benefits of binocular vision. Perfect development of the power of binocular vision may not be attained in many cases of squint, yet some of its benefits can be secured for the great mass of patients.

HEROIN IN COUGH.

By Chas. Herwirsch, Ph.M., M.D.,
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Among the newer drugs which have within a year appeared on the market, and to which the attention of physicians has been called, heroin appears to be one of the best. Dresser and Floret published their experiments with this new derivative of morphine in the *Therapeutische Monatshefte* for September, 1898, in which they stated that heroin not only very much modifies and quiets the cough, but also that the frequency of respiration was lessened and the inspirations prolonged. The same authors state that heroin has a more sedative effect upon respiration than morphine, and is ten times more powerful than codeine.

Leo (*British Medical Journal*, April 29, 1899) also discusses the value of heroin. He states that the drug has a particular action on the respiratory centers, lessening the frequency but increasing the depth of breathing. He says that its narcotic action is much less than morphine; and thus in sciatica, neuralgia, cardialgia, including the pain due to gastric nerve and muscular rheumatism, heroin did not relieve the pain, or did so only momentarily. Leo found the action of this drug exceptionally satisfactory in the various forms of dyspnea; it increases the duration of inspiration and the amount of air taken in. He cites a number of cases, among them two cases of uremic dyspnea, some of emphysema, chronic bronchitis, and asthma, and says that in all but three cases

out of thirty the results were good. He also says that heroin can be used with confidence, and will be permanently found to be a valuable remedy, in diseases accompanied by dyspnea.

During the last ten months I have used heroin in more than thirty cases, mostly with good results. In acute bronchitis I used it in adults as well as children with much satisfaction. In chronic bronchitis and in phthisis the drug has in most cases given good results, and failed in only three.

Miss W. H., aged thirteen, contracted a heavy cold in December, 1898. After administering the usual remedies, the patient had still, after three weeks, a distressing cough with tenacious expectoration. I ordered heroin, $\frac{1}{24}$ grain, three times a day. After forty-eight hours the patient reported the cough decidedly better, and the expectoration much lessened. After a week's treatment the cough had disappeared.

M. B, a boy nine years of age, was left with a severe bronchitis after an attack of measles in December, 1898. He was given heroin in $\frac{1}{24}$-grain doses three times a day, with the same happy results.

Mrs. H. H., aged forty-three, had an attack of acute bronchitis in January, 1899. After employing hyoscyamus and codeine without very good results, heroin in $\frac{1}{12}$-grain doses was given three times a day; this eased the cough, the patient could sleep, and in a week she had recovered.

Mr. F. A. G., aged thirty-one, had an acute bronchitis and laryngitis in January, 1899. He was a business man and used his voice constantly. I ordered local applications to his throat, with inhalations, and gave him heroin in $\frac{1}{12}$-grain doses, four times a day. He reported from day to day as getting better, only complaining of a drowsy feeling. After three days the heroin was cut down to three doses a day, when the drowsiness ceased, and after ten days the patient reported himself free from cough.

I myself contracted an acute bronchitis in February, 1899, and heroin in $\frac{1}{12}$-grain doses relieved the cough promptly.

F. B., aged nineteen, suffering with phthisis pulmonalis, with a cavity in the left upper chest and much dyspnea. He is frequently troubled with a dry cough. He had formerly taken morphine in one-eighth-grain doses, or codeine in half-grain doses, four times a day. Heroin is now given in $\frac{1}{12}$-grain doses three times a day; after a few doses it relieved the cough and subdued his dyspnea.

A. P., aged twenty-seven. Phthisis pulmonalis, cavity in upper lobe of right lung. He has been in different sanatoria, and had taken for a year serum injections. Two months ago he came to me, complaining of a cough lasting the last five weeks day and night, much dyspnea, vomiting after taking food, and an afternoon temperature of 103°. At first I gave this patient codeine ¼ grain and acid hydrocyan. dilut. 1½ minims in a vehicle every three hours, with local treatment to his throat; this relieved him for three days, when he again began to cough constantly. I now ordered heroin in $\frac{1}{12}$-grain doses every four hours, which promptly relieved the cough and dyspnea, and made him drowsy. After several days the above dose was given every six hours, and he now takes that dose every eight hours, and except for a cough in the morning is very comfortable during the day. Other appropriate treatment was instituted, and on the 7th of August, when I last saw the patient, his temperature in the afternoon was 99.4°, respiration 28, pulse 92 per minute; he had gained four pounds in two months. He coughs very little and reports feeling well and enjoying his meals. He has not vomited for six weeks; bowels are normal.

At the Rush Hospital I am using heroin on a number of patients mornings and evenings in $\frac{1}{12}$-grain doses for the cough, and among ten patients in only one, after six weeks' use of that dose, had the same to be increased.

Early in my experience I gave to a patient, Mrs. F. P., aged thirty-five, suffering from phthisis, heroin in doses of $\frac{1}{12}$-grain every four hours, but although the cough was relieved I had to discontinue the drug, as it produced sleep, the patient not being able to keep awake at any time, even after the dose was diminished.

David E., aged twenty-eight, suffering from phthisis, with extensive cavity in left chest, was given heroin in $\frac{1}{12}$-grain doses for his cough. The drug had no influence on his cough, but constipated him to such an extent that it had to be discontinued.

F. L., male, aged forty-seven, suffering from phthisis pulmonalis, last stage, was given heroin as an experiment. The patient was very comfortable with morphine in one-eighth-grain doses three times a day; this was omitted and heroin in $\frac{1}{12}$-grain doses given, which was later increased to four doses a day, and again a few days later to one-sixth-grain doses three times a day, but

without having any influence on the cough, and I had to return to morphine again.

I have in all treated thirty-five cases with heroin, but space prohibits the giving of more histories.

From the foregoing cases the following can be deduced: Heroin in doses from one-twelfth to one-sixth grain three times a day is a very valuable addition to our materia medica in acute as well as chronic bronchitis, and the cough accompanying phthisis. The drug acts well in most cases, and except in the three cases mentioned, where it did not give any benefit and had to be discontinued, the results were always satisfactory. The number of respirations of the patients taking the drug was diminished, as the charts in the hospital, and of some of the cases in private practice when such could be kept, prove the drug, after being taken in some cases for three months, except in one case, had not to be increased, and no drug habit was established. Except in one case heroin had no tendency to constipate like morphine, and in only one case did drowsiness follow its administration. No headache or disorders of the stomach resulted from the use of heroin, as is often the case with morphine. The dose is much smaller than either morphine or codeine, and very much cheaper than the latter drug, a great advantage if a drug has to be used for a long time, as in phthisis. Of late hydrochlorate of heroin, soluble in water, has come into the market, which is adapted for hypodermic use, and as Eulenburg in the *Deutsche Medicinische Wochenschrift* of March 23, 1899, reports, the same so used acts more rapidly than when given by the mouth.

SOME THERAPEUTIC MEASURES OTHER THAN MEDICAMENTS.

By W. L. Johnson, M.D.,
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The writer has no word against modern medicaments, but desires to remind others and be himself reminded of some measures, not medicinal, in combating disease and its morbid manifestations. Therapy does not mean drugs—it is broader than that.

Let us take pilocarpine, for instance. Gaskell's experiments point to the fact that it, like acids, shortens the systole of the frog's heart, renders it subsequently less and less powerful, and finally causes cessation of its action, the ventricles remaining at rest in diastole. Brunton classifies pilocarpine as a cardiac depressant and paralyzant—that is to say, the cardiac muscle is no longer capable of contraction on stimulation, either mechanical or electrical. Probably by its stimulating the terminal branches of the glandular secretory nerves we have its characteristic effects. Probably it has a central action. We have a copious diaphoresis, and frequently a marked sialorrhea. Hence there are conditions where it is indicated and used: puerperal eclampsia, uremia, and in infectious diseases such as croup, influenza, and scarlet fever—in short, wherever and whenever, theoretically, we desire elimination. But pilocarpine may be contraindicated, for it is by no means devoid of danger. Cardiac or general syncope, sudden pulmonary edema, convulsions, "strangury and sometimes retention" (Brunton), as well as dimness of vision, vomiting, and glandular swellings, have all followed its administration.

We may well resort, then, to the hot pack, steam or vapor bath, or hot-air bath, in cases requiring diaphoresis and in beginning influenza or threatened eclampsia. One of these combined with hot drinks will work the same results as jaborandi. Uremia may thus be treated, and in threatened eclampsia it is both safe and effectual.

It is now considered a fallacy to "dry up" the secretion of milk by atropine—at least by its action alone. Moreover, there are cases where it is contraindicated. Instead of giving the drug and using camphor or belladonna liniment or what not, bandage the breast with a roller bandage or adhesive strips. Massage if you will with belladonna ointment, but *massage*. The same may be said of mastitis, non-surgical: give phytolacca if you must, but massage or bandage. Pressure by the bandage is the most reliable treatment; there is none more sure in aiding nature. Pressure causes absorption; it diffuses, it rests. Its possibilities are only suggested here.

Let us take a case of pleurisy, acute fibrinous, with moderate or no fever when seen, a stitch in the side aggravated on coughing or deep inspiration, and while opium or a plaster, or both, often accomplish much, yet rest is indicated; and that rest is best secured by strapping the affected side of the chest, thus insuring rest to the part that needs it and no other, and in a manner that in no wise interferes with the secretions or excretions. You cannot constipate a man by

"fixing" half of his chest, and you can if you give opium.

There is a field, and a wide one, in which ergot is used, and yet in many instances it would be better to substitute physical means. In hemoptysis many regard this drug as not only of no value but injurious and irrational, since capillary bleeding, it is contended, is not at all influenced by ergot; and furthermore, it causes a rise of pressure in the pulmonary circulation. In these cases intermittent cold applications, sucking of ice, dry cups to the chest (or other counter-irritation), are all of service, and combined with absolute *rest*, the first requisite, more reliable than any medicine, except perhaps morphine.

How frequent it is that convulsions in infants may be controlled by means other than medicinal. The rectal injection of chloral or the giving of bromides, while not devoid of good, are not to be resorted to in a routine fashion, nor yet the inhalation of chloroform. Cold to the head, the warm, *not hot*, bath, the mustard pack, or mustard foot-bath, flushing the bowels, or even the use of an enema, are all measures easily resorted to and which promise good results. Removal of the cause, as a pin, a swollen gum, an overloaded stomach, may be remedied without resort to medicine. Pressure on the carotid (which necessitates pressure on the sympathetic) — a simple procedure indeed — has stopped convulsions. Here again absolute quiet is indicated. Who does not know the value of quiet in strychnine poisoning, and in tetanus?

Not only are nervous symptoms favorably influenced by rest, but many other conditions; so much so that we have a "rest cure" for many ailments. In threatened abortion there is nothing comparable with rest, and while opium is frequently of service, the recumbent position with no exciting influences must always be resorted to and insisted upon. Ergot and opium are of inestimable value in these cases — the former in very small doses of a reliable physiologically tested preparation—but where there is persistent pain and hemorrhage of any consequence they are best met by a mechanical plugging of the vagina. Nor does this procedure necessarily invite abortion. Often when it is seemingly inevitable, resorting to this method, with the view of exciting contractions and causing complete expulsion, we obtain quite contrary results—the os closing, pain and hemorrhage ceasing.

While we have remedies innumerable for meeting postpartum hemorrhage, we have one that is sure, yet not appreciated by all. The physician need not have ice, lemons, vinegar, or persulphate of iron, if he will have unbroken packages of plain sterilized gauze and at once pack the uterus. Why temporize? There is no great danger—not as great as using iron solutions. Give your aseptic ergot for all that, but *pack*. King in his Manual of Obstetrics describes the method. It is safe, rational, and effectual. In Sajous' Annual, 1893, Barker is thus quoted: "After having a fatal case of postpartum hemorrhage from an empty uterus I concluded that if I had used the intra-uterine tampons, as advised by Dührssen, I might have saved the woman's life."

Hilton, years ago, dwelt upon the value of rest especially in diseases and injuries of the spine. To rest the brain does not of necessity mean entire disuse of the faculties. We may rest the part accustomed to work and yet be active mentally, just as we may rest an arm in a sling and yet have much physical freedom; forgetting our professional or business worries in the joy of sightseeing or the rugged, hardy pleasure of hunting, is *rest*. Each organ, as Hilton pointed out, appears constructed with innate powers to rest from its labor, and unless given the opportunity will be altered structurally. Thus the heart, when repeatedly subjected to great strain, as excessive exercise, fever, or constant emotional disturbance, without appropriate rest, and the liver, kidney, or stomach constantly overworked by alcoholic or other excesses, become the seat of fatty, cirrhotic, or other changes.

While there cannot be absolute there can be relative or partial rest of the heart during life, and since we know that pressure within the heart is an important factor in the production of endocarditis, our first effort in acute rheumatism is to secure reduction of this pressure by rest, whether to prevent endocarditis or, once established, to combat it. Few more important observations have been made than the necessity of consigning the agile young patient suffering from acute rheumatism to the security of perfect rest. In valvular diseases of the heart the diet, avoidance of overexertion, guarding the emotional nature, are first and paramount principles of treatment. This does not mean that digitalis, its congeners, and tonics have no place, but that with them and often without them this rational rest is indicated; witness the Schott treatment.

In convalescence of a critical nature following acute disease we must not forget a fact, pointed out by Balfour, that "some trifling exertion undertaken before the heart has had time to reaccumulate sufficient energy starts an ingravescent asthenia from which there is no recovery." Remember in these cases, then, to insist on rest, and don't stimulate to death the unstable organism with medicines.

In no department of surgery and medicine is avoidance of, or discretion in, stimulation more necessary than in concussion of the brain — remember rest here; and in many cases of sunstroke the application of ice or cold baths is far safer and surer than antipyretics.

SOME CLINICAL EXPERIMENTS WITH MERCUROL IN CASES OF ACUTE GONORRHEA.

By Frederick Fraley, Jr., M.D.,
Philadelphia.

Among the more recent germicidal preparations which have been advocated for surgical purposes is mercurol, an organic compound of mercury with nuclein, containing about ten per cent of mercury. It exists as a light, brownish-white, fine powder, and is soluble in water, especially when the latter is warm, but is insoluble in alcohol. Its reaction is slightly alkaline. It is employed in solutions of from one-fourth to two per cent, the diluent being normal salt solution, as this seems to add to its efficiency.

This germicide is being placed on the market by Parke, Davis & Company, and at my request they furnished me with the foregoing description, and also with a paper by Dr. Karl Schwickerath, the discoverer, from which I will quote, setting forth the advantages which Dr. Schwickerath claims for his new preparation.

Dr. Schwickerath says that the various inorganic salts of mercury, silver, and copper which have been so extensively used as antiseptics and germicides are not entirely satisfactory, owing to their irritating effect on the tissues. Not infrequently they exert such a devitalizing effect that the resisting power of the tissues is so lowered that they can no longer react to stimulus, and thus the healing process is retarded rather than advanced, defeating the very object for which these antiseptics are employed. The indolent ulcer, which so often results from the injudicious or prolonged use of powerful antiseptics, is a familiar example of this undesirable action.

"The explanation of this devitalizing effect lies in the fact that these antiseptics possess too great an affinity, chemically speaking, for the constituent parts of the animal cell, and that when an inorganic salt is brought into chemical relation with the organic components of tissue a considerable reaction takes place. For instance, if a solution of corrosive sublimate be brought in contact with a wounded surface, the metallic base is absorbed, while the acid portion of the compound reacts with the albuminous elements of the tissues, this reaction manifesting itself by coagulation."

Having these facts in view, Dr. Schwickerath thought that organic compounds of those minerals which had a lesser chemical affinity for the cell, while preserving the germicidal properties of the inorganic compounds, would be less irritating. Now it is known that some of the metalic salts will enter into chemical combination with certain proteid substances, and so it occurred to him to use nuclein, a nucleo-albuminous substance found in the nuclei of animal cells, for his experiments, as this, being a cell product itself, would not be so likely to cause reaction.

As a result of his experiments Dr. Schwickerath has produced soluble organic compounds between the salts of mercury, silver, copper, and iron, and the proteid nuclein, to which he has given the names mercurol, nargol, cuprol, and ferrinol, and of which mercurol, as might be expected, seems to be the most powerful germicide.

Dr. Eugene Smith, of Detroit, in a paper read before the Detroit Medical and Library Association, reported the results of his use of mercurol in diseases of the eye and ear, which were most favorable. A short abstract of this paper may be found in the *Journal of the American Medical Association* of March 4, 1899, page 501.

Dr. Burtenshaw, of New York, in reporting a case of exudative pericarditis, in the course of which a very severe cystitis arose, speaks very favorably of irrigations of mercurol, which almost immediately relieved the patient after all other remedies had failed, and which within four days completely cured the cystitis. (See *Medical News*, March 11, 1899, page 292.)

Up to the present time (May, 1899) I know of no other reports on the use of mercurol.

The ideal injection for acute gonorrhea is

one which, while exerting a powerful germicidal effect, would at the same time soothe the inflamed mucous membrane, and add to its resisting power; but as yet, unfortunately, no such valuable remedy has been discovered. The injections most employed are potassium permanganate and silver nitrate in weak solutions, but they have not proved themselves uniformly satisfactory, often causing decided irritation, and failing to materially influence the course of the disease. If, as is claimed, mercurol is a powerful antiseptic and does not irritate or devitalize the urethral mucous membrane, a valuable drug has been found for genito-urinary work.

In the cases of gonorrhea which were treated with mercurol the formula at first uniformly prescribed was a half-per-cent solution of mercurol in normal salt solution, to be used as an injection. Later it was found advisable in some of the cases which showed a tendency to linger to use a one-per-cent solution, and in one or two cases a two-per-cent solution was prescribed without causing any symptoms of inflammatory reaction. The one-half-per-cent solution is equivalent to a 1:2000 solution of mercury, a much stronger solution than would possibly be borne of the bichloride; and in fact I have injected into a healthy urethra a five-per-cent solution of mercurol, equivalent to a 1:200 solution of mercury, without causing more than a temporary tingling and slight burning sensation, which passed away in the course of less than an hour. It would seem, though, that it is never necessary to use a stronger than a two-per-cent solution, which apparently is quite powerful enough, without producing any disagreeable sensation. In but one case did a patient complain of the injection causing more than a momentary smarting.

The patients were instructed to inject every two hours, to hold the injection in for two minutes, and to report every day at the dispensary for microscopic examination of their discharges. These instructions they did not always follow, and it was with difficulty that they could be induced to return to the dispensary at all regularly, often remaining away for several days or even a week or more. In the latter cases they would usually say that they had felt perfectly well during the interval and not infrequently stopped their injections, only seeking the dispensary again when the discharge recommenced, owing to indiscretion or neglect. Four of my patients never returned, and another came back but once, reducing my number of cases under observation throughout the disease to fourteen. In order to discover if possible why these men had never come back to the dispensary, I endeavored to look them up, and succeeded in finding only one of my recreant patients. I learned from him that he did not come back simply because he had had no more trouble after his supply of mercurol was exhausted, and had no need for further treatment. On looking up my notes on this case I found that on his visit to the dispensary he had a profuse purulent discharge with gonococci present in the second degree—that is, in fairly large numbers—and was given the usual half-per-cent injection. Of the other similar cases I have no record, and though it would be quite unwarrantable to form the conclusion that they were equally fortunate, yet it leaves this as a possible explanation of their non-appearance.

Of the fourteen cases which I had an opportunity of treating for a somewhat longer period, six were entirely cured, being in all respects normal; three practically cured; three distinctly improved; and two were distinctly not improved, but were worse when they were taken off mercurol than when they were put upon it. In explanation of the foregoing statement, it is necessary to understand what we mean by practically cured.

The dispensary patient comes for the relief of one or both of two symptoms:

1. The urinary symptoms.
2. The discharge.

The discharge only annoys the patient when it is of sufficient quantity to soil his clothes, and if we reduce it so that there is only the so-called "morning drop," and relieve his urinary symptoms, he will consider himself perfectly cured and will not revisit the dispensary until he is again unfortunate, or until some indiscretion on his part lights up the old complaint.

In the cases I classify as "practically cured," there had been no gonococci present in the discharge for at least three visits, and the discharge itself was reduced to the "morning drop." Urination was of course normal in all of these cases when last under observation.

Before drawing my conclusions I intend to present a few cases, copied directly from my note-book, illustrating those in which the treatment was not successful as well as those in which the best results were obtained.

CASE I.—The first that came under treatment was F. R., aged thirty, motorman, who came to the dispensary on March 14, suffer-

ing with acute gonorrhea. His previous history showed four or five attacks, the last one about a year ago. The history of the present attack was that he had been on a spree a week before, and a few days afterwards the discharge appeared. The discharge was quite profuse, mucopurulent, and gonococci were present in the first degree—*i.e.*, in large numbers. There was no increased urination, but the patient complained of chordee. Mercurol was prescribed, one-half per cent in normal salt solution, to be injected every two hours.

March 17. Urine clear; no symptoms; scanty discharge; no gonococci. Injection does not smart.

April 1. Very scanty discharge, no gonococci, but complains of frequent urination, without tenesmus.

April 14. Has had no discharge for some time, and has no symptoms. Says he feels cured. Mercurol stopped and patient given zinc chloride gr. iv to oz. iv to tone up urethra.

The patient I think we may fairly say was cured exactly one month from instituting treatment.

CASE II.—C. D., aged twenty-three, student. First seen on March 16. Previous history showed attack of gonorrhea two years ago, which lasted three months. The present attack had lasted several weeks, and had an incubation of four days. On examination a scanty mucopurulent discharge was found. No history of chordee or ardor urinæ. Gonococci present, second degree. Mercurol injection, one-half per cent every two hours, prescribed.

March 18. Very scanty discharge, no gonococci.

March 23. No discharge, no symptoms.

March 30. No discharge, no symptoms.

April 6. A very slight mucous discharge, no gonococci present, but many epithelial cells, showing that repair was well under way. No urinary or other symptoms. This case lasted only three weeks after treatment was instituted, and may be said to be practically cured.

CASE III.—J. S., twenty-four, student. Seen March 23. Previous history showed several attacks. The present attack was of a few days' duration, and the patient had a moderate purulent discharge with very abundant gonococci, first degree. Had no urinary symptoms or chordee. Given a half-per-cent injection of mercurol every two hours.

March 25. Very scanty discharge, slight ardor urinæ, but the injection does not smart. No gonococci in discharge.

April 5. No discharge, no urinary symptoms.

April 14. No discharge except morning drop; a few shreds in the urine; no gonococci.

April 20. No discharge for several days; urine clear; no symptoms.

The patient was loud in his praise of mercurol and declared it to be the best remedy he had ever used. His entire attack lasted only about four weeks.

CASE IV.—This case will serve to illustrate the severe tests to which remedies are subjected by intractable patients. O. B., twenty-three years old, a laborer, came into the dispensary on March 28 with a profuse mucopurulent discharge. His history told of several previous attacks, and the present attack had lasted a week, coming on one day after exposure. He complained of ardor urinæ and chordee, and the two-glass test showed a posterior as well as an anterior urethritis. The discharge contained gonococci in the first degree. An irrigation of mercurol, one-half per cent, was given, but no hand injection, and patient was told to report next day.

March 29. No posterior urethritis, the second glass being clear, but the discharge was still profuse, and gonococci abundant. Mercurol in half-per-cent injections prescribed.

March 31. Still a profuse discharge; gonococci, second degree. Mercurol raised to a one-per-cent solution.

April 4. Discharge continues, but is scanty; gonococci present in third degree. The patient acknowledges excesses in drink during the past week. No urinary symptoms.

April 6. Very scanty discharge, very few gonococci; no other symptoms.

April 13. Very scanty discharge; no gonococci; numerous epithelial cells. Given a two-per-cent injection of mercurol.

April 17. Profuse discharge, but urination normal, and no gonococci in discharge. Patient admitted having been off on a drunk.

April 22. No discharge at all; no symptoms; has been having sexual intercourse. Continued two-per-cent injections.

This case was certainly much benefited, though it is doubtful whether it could be considered cured owing to the patient's indifference, his excesses being sufficient to keep up the discharge notwithstanding treatment.

CASE V.—W. G., student, twenty-three

years old, came for treatment on March 28. Past history told of an attack of gonorrhea three years ago. His present condition had lasted three days, after an uncertain incubation. He had a moderate discharge, containing gonococci, first degree, but had no urinary symptoms or chordee. Put on half-per-cent mercurol.

March 30. Discharge has almost completely ceased; gonococci present in third degree. Patient has no unpleasant symptoms, and says the injections do not smart.

April 3. Very scanty discharge; only one or two pus cells containing gonococci discovered in the discharge. Patient says he feels perfectly well.

April 11. Patient has a very profuse discharge, soiling his clothes, but no other symptoms. The mercurol injections were raised to one per cent. No gonococci found.

April 13. Discharge entirely stopped.

April 17. The two-glass test shows a total urethritis with probable cystitis; the patient is urinating every ten minutes, and has ardor urinæ and vesical tenesmus.

Patient denied excesses, but said his occupation kept him on his feet every day for eight or ten hours. His discharge had ceased, and none could be obtained. An irrigation of half-per-cent mercurol was given, but next day showed no improvement, and the irrigations were changed to potassium permanganate, under which improvement was immediate and uninterrupted. In this case mercurol cannot be said to have accomplished much, although the discharge was stopped and the gonococci destroyed, for when the urethra and bladder were involved it seemed to have no effect whatever. It is quite possible that a stronger injection, two per cent for instance, might have yielded better results, but the patient was suffering so acutely that it was not deemed justifiable to continue mercurol, when it did not seem to be doing any good.

Case VI.—H. W., twenty-one years old, came to the dispensary on March 30 with an exceedingly profuse purulent discharge, swarming with gonococci. It seemed as though each cell was crowded to its utmost capacity with the microorganisms, none escaping infection. His previous history was negative, and regarding the present attack he gave ten days as the duration and two weeks as the period of incubation. He presented no urinary symptoms, nor had he been troubled by chordee.

April 1. Discharge about the same; gonococci still present, first degree. The injection does not smart and urination is normal. Mercurol injection raised to one per cent.

April 3. Two-glass test shows a total urethritis, and patient complains of ardor urinæ and vesical tenesmus. Gonococci are still present in the discharge, though only in the second degree, the discharge being scanty.

The injections were stopped temporarily, and an irrigation of mercurol one-fourth per cent was given, and copaiba and sandalwood capsules ordered by the mouth. The irrigations were continued daily, and the patient's condition rapidly improved. On April 6 I have the following note:

Patient much better; no ardor urinæ or tenesmus; a scanty discharge, mostly mucus, containing a few pus cells with gonococci, third degree, and some epithelial cells, showing that repair had commenced. Daily irrigations continued.

April 7. Still a slight discharge, but no gonococci detected in it. The urinary symptoms are absent. Injections renewed.

Patient did not return until April 10, when he came back with a profuse discharge and posterior urethritis, and a few gonococci present in the discharge, but without presenting any urinary symptoms. An irrigation of half-per-cent mercurol solution was given, and repeated next day.

On April 12 the patient returned in great distress with a profuse discharge, and a history of being obliged to urinate every few minutes, with great ardor urinæ and vesical tenesmus. He was given a half-per-cent mercurol irrigation, which treatment was continued for two or three days without producing any decided change in the patient's condition. Upon changing the treatment to irrigations of potassium permanganate, the patient began to improve, and in four or five days returned to nearly a normal condition, his discharge having stopped and his urinary symptoms being relieved.

This case was remarkable in two ways: First, the extreme virulence of the infection, and secondly, the apparently well advanced cure on April 7, being followed by the severe posterior urethritis on the 10th, which failed to respond to the mercurol treatment. The patient strongly denied any injudicious act which might have caused a relapse, and as he had been especially warned to take care of himself, I have no reason to doubt his statement. A possible explanation may be

based on the fact that the primary infection was so severe that the bladder itself might have become infected, and the condition have remained latent during the period of irrigations, and started up when these were discontinued. The possibility of a cystitis complicating the second condition is also brought out by the fact that the first posterior urethritis, with pronounced urinary symptoms, yielded promptly to the mercurol injections. I have no other explanation to offer for the apparent failure of mercurol in this case.

In forming a conclusion of the value of mercurol in these cases of gonorrhea, a few figures will, I think, be the best way of making clear the results obtained. Cured, six, or forty-three per cent, in less than four weeks; practically cured, three, or twenty-one per cent, in three weeks; distinctly improved, three, or twenty-one per cent, in sixteen days; not improved, two—both of these cases were temporarily much benefited. A total of twelve cases, or eighty-five per cent, benefited by mercurol.

Immediate effect on discharge within forty-eight hours: Stopped it completely in three, or twenty per cent; lessened considerably in seven, or fifty per cent; not perceptibly lessened in four. An improvement in seventy per cent.

The effect of mercurol on the urinary symptoms was prompt, and complete relief in all except the two cases reported as failures, and in these it relieved the original conditions, though it failed in the relapses.

The average duration of treatment was as follows: In those cured, twenty-six days; in those practically cured, twenty-one days; in those improved, sixteen days. Had all the cases been willing to be treated twenty-six days, perhaps the percentage of cures would have been greater.

The best results were in the cases with simple anterior urethritis, and in the cases either of short duration (two to four days) or of comparatively long duration (ten days to two weeks), the explanation of the latter being that the disease had already exhausted some of its virulence.

In those cases which involved the posterior urethra the results were not so good, but this may be due to having used the remedy in too weak solution. Judging, however, from the rapid improvement of these cases under the use of potassium permanganate we may fairly say that the latter is the better agent for irrigations, while mercurol is superior for injections. It would seem, however, that an unirritating remedy which has cured patients of gonorrhea in a period averaging less than four weeks is one that is not to be despised, remembering that the length of treatment in the hands of good physicians averages six weeks before a complete cure is effected.

BILATERAL CHRONIC INTERSTITIAL MASTITIS CURED BY OPERATION.

By Edward Martin, M.D.,
Surgeon to St. Agnes, Philadelphia, and Howard Hospitals.

The subject of this report—a teacher, thirty-eight years old—of sound parents and without family taint, had been perfectly well till the early part of 1889, when she began to suffer from a dull pain, referred to the middle of the sternum, and sufficiently severe greatly to disturb her health and to interfere with her vocation. This pain was always worse at the menstrual epoch. At times it would be stabbing and lancinating in character, and shoot down the right arm into the fingers. In these most severe manifestations it was attended by slight dyspnea and marked pallor. It was diagnosed as angina pectoris by her attending physician. The breast gradually grew harder, but exhibited no nodulation of any kind; nor were the lymphatic glands in the axilla affected. The constant pain did not seem to be in the breast, though the latter was exquisitely tender on palpation. The patient steadily lost in weight, became anemic, and exhibited the typical facies and neuroses of one harassed by a constant pain. She had been subjected to all manner of treatment.

Gout, rheumatism, and syphilis had all been suspected, and a thorough course of appropriate therapeutic means had been tried. The symptom became steadily worse, so that in September, 1895, I removed her right breast, together with the axillary and subclavicular glands. This was followed by an immediate cessation of all pain. The section of the breast showed that it was almost completely transformed into scar tissue. No cysts were apparent anywhere, and but little of the normal glandular substance could be detected. The relief from pain lasted for four months. It then returned, but was referred to the left shoulder and arm, running down into the little and ring fingers. It grew steadily worse, was associated with exquisite

tenderness and increasing induration of the breast, and was undermining her general health. At the end of February, 1896, I resected the left breast, not opening the axilla; sections showed the same fibroid changes which were so marked in the other breast. There was immediate and entire relief from pain, and it has been permanent, since I have seen the patient within three days of this report. She has gained over fifty pounds, has been in perfect health, and has not lost over an hour's sleep or an hour's work in the last four years.

The etiology seems extremely obscure. Neither before nor since the attacks of pain have there been any manifestations of a gouty or rheumatic diathesis. There is no history of trauma, no signs or symptoms of syphilis.

The differentiation of this affection from mastodynia was dependent rather upon the induration than upon any other symptom, since the patient, being much wasted by her long suffering, was typically neurotic in appearance.

The distinction from malignant disease was somewhat difficult. The nipples were retracted, but the skin was not in the least adherent, nor were the axillary glands involved. This differential diagnosis—from malignant infiltration—was not made at the time of the first operation, though it was suspected for the reasons just noted, and because the hardening was general and no nodules could be felt. It was not till examination of the sections showed a mass of almost pure fibrous tissue that cancer was positively excluded.

The excellent effect of the double operation upon the general health makes the case worthy of record, since we have become habituated to a variety of surgical interference, practiced upon neurotic women, based upon obscure physical signs and resulting in no permanent benefit to the subjects.

ANESTHETICS AS A CAUSE OF PARALYSIS.

He who upsets an erroneous doctrine sometimes performs as important a service as he who establishes a new one. Such a service seems to have been performed by Mally, who has made a study of thirty-six cases of paralysis such as authors have been inclined to impute to anesthesia (*Revue de Chirurgie*, July). In ten of them he finds there was a central lesion that accounted for the paralysis; six of them were hysterical; seventeen others he classes as peripheral, and proceeds to investigate them *seriatim;* and the three remaining cases he sets down as reflex. It is noteworthy that of the seventeen peripheral cases, eight were observed by the author personally, and perhaps it was that fact that led him to make the investigation.

Mally rejects the idea that there is any connection at all between anesthesia and the hysterical and reflex paralyses. Those of central origin may be due indirectly to the anesthetic, which in a purely mechanical way leads to the rupture of a blood-vessel in the brain. The peripheral paralyses, which are rather frequent, are always, he finds, due to compression, and the anesthesia has only this to do with them, that it favors involuntary or accidental compression of nerve trunks or the roots of the brachial plexus in the course of an operation. There is no evidence, he says, to show that the toxic or depressing action of the anesthetic has anything to do with giving rise to paralysis, and any such action on the nervous system is only hypothetical.

As regards the treatment of these paralyses, it is both preventive and curative. During anesthesia the patient's arms should not be forcibly drawn up, and care must be taken that none of the limbs are allowed to hang over the edge of the operating table or suffer compression by the weight of the patient's body or by any ill-placed constricting band. As to the curative treatment, cases of central or hysterical origin present no different indications from those afforded by such paralyses in general. The peripheral paralyses due to compression may be treated with advantage by the ordinary procedures of localized faradization, and they should be applied as soon as possible. When the reaction of degeneration is present, however, localized electrization must be avoided. The wasting of muscles about the shoulder-joint that is apt to result from paralytic immobilization may be prevented by resorting early to passive motion of the joint. The grave reflex paralyses should not be treated by localized electrization, but the reflex irritability of the spinal cord may be moderated by sedative applications of static electricity, by the "electric wind," and, if it is indicated, by revulsion over the vertebral column by means of friction and sparks.—*New York Medical Journal*, Aug. 19, 1899.

The Therapeutic Gazette

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Leading Articles.

A NEW HYPNOTIC.

In that portion of the GAZETTE devoted to Progress will be found an abstract of a recently published valuable paper by Houghton and Aldrich about a new hypnotic substance known as chloretone, which is trichlor-tertiary-butyl-alcohol.

As set out in that abstract, this substance has already proved itself valuable in producing sleep in cases of nervous insomnia, in relieving nervous irritation, and in acting as a gastrointestinal sedative, allaying irritation rather than producing it, as does chloral. It gives comfort and rest without producing any of the disagreeable effects of morphine. If their researches are duplicated by others, it would seem probable too that chloretone may be found of value as a distinct analgesic, thereby differing again very markedly from chloral, which substance is only pain-relieving when given in sufficiently large doses to be distinctly depressing to the circulation.

On the few occasions in which we have had the opportunity of administering chloretone it has produced excellent results. In one instance of cardiac distress complicating parenchymatous nephritis and associated with marked insomnia, the administration of twenty grains of chloretone in the early evening produced comfortable sleep. In another case of gastric carcinoma it seemed to give the patient much relief, and still again, in a case of nervous cough, it seemed to act as a reflex sedative very effectually. The dose of chloretone varies from ten to thirty grains, and it is best given in small sugar-coated tablets of three grains each.

A HEROIC TREATMENT FOR SCIATICA.

Some of the readers of the THERAPEUTIC GAZETTE may remember that quite a long time ago there appeared a Progress item in our columns in which the results obtained by a Russian clinician in the treatment of sciatica by the application of hydrochloric acid were detailed. Since then a few of the medical journals in this country and abroad, chiefly the latter, have also contained reports of the institution of this method in obstinate cases of this intractable affection.

The latest instance of this character to which we have had our attention called is the report which is made by Dr. Purdee in the *Australian Medical Gazette* of August 21, 1899, in which he tells us of the results which he has obtained in a number of cases in which he has employed this method. After giving some of the literature on the subject, which is by no means voluminous, and pointing out that Gennates, a Frenchman, was perhaps the first to introduce this method, he tells us that in his own cases he painted pure hydrochloric acid along the course of the nerve and dressed the burn produced in this way with zinc ointment, afterward bandaging the leg. This one application gave the patient great relief. In other cases it was necessary to make two or three applications during a period of a fortnight, but he points out the fact that in some instances the superficial pain and discomfort are so severe that it is necessary to open the blisters which are produced and dress them with powdered opium.

From Dr. Purdee's experience it would seem that this method of treatment is not only efficacious but unusually rapid in its effect. Naturally the lesions which are pro-

duced in the skin are very considerable, and it may be regarded as an exceedingly severe form of counter-irritation, more closely allied, perhaps, to the old form of cauterization than the more superficial forms usually produced by the electric cautery which is used to-day. Indeed, the results produced by the application of strong hydrochloric acid must be as severe and deep as those caused by the at one time popular moxa.

While Dr. Purdee recognizes the fact that the treatment is heroic, he points out that most patients will submit to almost anything in preference to the agonizing pain of the neuritis, and he believes that the pain of the application of the acid is less than that which accompanies acupuncture.

Personally we believe that this form of treatment is not justifiable until all other methods have been tried without good results, and also that it is indicated in those patients with true sciatic neuritis rather than in those cases which are instances of sciatic neuralgia.

If any of our readers have cases in which they decide to try this method of treatment, we should be glad to hear of the results they obtain, whether they be favorable or unfavorable.

PHOTOTHERAPY.

Several years ago it was announced by Dr. Finsen, of Copenhagen, that he had devised a method of treatment for the eruption of smallpox by means of the employment of the chemical rays of solar light. His treatment of the inflammatory skin conditions characteristic of smallpox was based upon the fact that the chemical—that is, the blue, violet, and ultra-violet—rays of light are capable of causing an inflammation of the healthy skin, and therefore would be capable of still further aggravating inflammations which already existed. His idea was that if these chemical rays could be excluded, inflammatory and suppurative conditions could be to a great extent decreased or set aside; and recently he has gone still further and suggested that we employ these chemical rays for the purpose of treating superficial diseases of the skin dependent upon various forms of infection by concentrating the chemical rays of light upon the part. The so-called scientific basis for this proposition is that the chemical rays of light are known to possess bactericidal properties, that they are also known to cause distinct changes in the healthy skin, and finally, that these rays are known to be able to penetrate the skin.

While it is known that sunlight in general possesses distinct bactericidal properties, it is another question as to whether these properties depend upon the various rays of light as a whole, or whether only certain of the rays exercise this influence. Finsen believes from his researches that it is the chemical rays which are chiefly responsible for the destruction of microorganisms, and he finds that while the blue and violet rays possess this power especially, on the other hand the red, yellow, and green rays are useless. Therefore it is evident that for the greatest possible bactericidal influence we must have these rays to the entire exclusion of others if possible.

Finsen concentrates the light by means of an apparatus which consists of a lens about twenty to forty centimeters in diameter, composed of a plain glass and a curved one, and between these two disks there is a bright blue ammoniacal solution of copper sulphate. As the result of introducing the blue liquid instead of using solid glass, a considerable cooling of the light is obtained, the water absorbing the ultra-red rays, and the blue color excluding a considerable amount of the red and yellow rays, which is advantageous, as it is known that these three varieties of rays have strong heating properties, and as already stated, that their bactericidal properties are scarcely worthy of consideration. While these rays, therefore, are excluded by this apparatus, the blue, violet, and ultra-violet rays are but slightly impaired. The sunlight should be perfectly clear, not diminished by cloud or moisture in the air to any greater degree than is found on perfectly clear days, and is to be directed upon the part of the body which is diseased. In cases where it is not possible to employ sunlight, the electric arc light has been employed with a special apparatus. Even with the precautions that we have named there is danger of burning the skin with the heat rays, and therefore a small apparatus much like that which is used by naturalists in studying small marine animals on the circulating stage of a microscope is employed. This is placed upon the skin, and a small current of water continually circulates through it, while the pressure which the disk exerts upon the skin renders the part anemic, and therefore the chemical rays penetrate it much better than they would do otherwise. The area of skin which Finsen has treated daily is about one and one-half

centimeters in diameter, and as a result of the treatment it reddens, swells, and a blister may form; but actual local death has never taken place in his experience. A different area of skin is usually treated each day.

Finsen tells us that he has treated 350 cases of lupus vulgaris by this means, and as a result of such treatment he is of the opinion that this method affords more satisfactory results than any other which has been presented to us so far. So, too, in lupus erythematosus he has obtained good results, although, of course, the number of his patients has been very much less than in lupus vulgaris. Seven cases of alopecia areata have also been treated by this means, and as these are all manifestations of superficial skin infection, he believes that a wide therapeutic field has been opened to us. Certainly the apparatus is not so costly as to be out of the reach of physicians who frequently meet with these conditions, and while it behooves us to regard with some suspicion such novel and unusual methods of treatment and wait until they have given undeniable proof of their advantage before indorsing them, we have thought the matter of sufficient interest to bring it before our readers in this editorial note. A full description of Dr. Finsen's method, as described by his assistant, Dr. Bie, of Copenhagen, will be found in the *British Medical Journal* of September 30, 1899.

THE TEACHING OF PHARMACY IN MEDICAL SCHOOLS.

With the continual advances which are being made in the methods of teaching the various branches of medical study, many questions naturally arise for the consideration of those who are engaged in presenting to students information which will qualify them to be successful practitioners of medicine, and in the early days of the students' career it is an important point to decide how much pharmaceutical information should be presented to the medical student for his assimilation.

Years ago there can be no doubt that a considerable amount of information of this sort was of inestimable value to the practitioner, particularly to one that intended to follow his profession in the country districts. It was necessary for him to know the appearance of growing and dried medicinal plants, and it was also necessary that he should prepare from these plants the various medicaments which he knew by experience would prove useful in his practice. To-day this function of the physician both in the country and city has become entirely obsolete. The manufacturing chemist provides each practitioner with official products in solid and liquid form at small cost and of such reliability that it is futile for an individual to attempt the preparation of medicines for himself. For this reason a certain amount of the pharmaceutical information heretofore imparted to students is no longer necessary, and the facts which he wishes to know deal rather with finished products than with crude materials. It is important to the physician of to-day that he should know about pharmaceutical and chemical incompatibility; that he should not prescribe fluid extracts in watery solutions; that he should not order salts to be dissolved to the point of saturation in any of the official waters which already have in solution a certain amount of medicinal substances; that he should not order such large quantities of bulky materials placed in pills that these pills become boluses too large to be swallowed. In other words, he must know enough about pharmacy to be able to write with ease a prescription which will not only contain the ingredients needed by his patient, but which are capable of being put up in such a form as to be easily taken and to impress the patient with his ability to compound medicines. For this reason it is necessary that he should have a working knowledge of the means by which each one of the official preparations of the U. S. Pharmacopœia is prepared, and there is no better way of teaching him this than by allowing him to prepare a representative of each class during the early days of his medical college career. The mere manipulation fixes the method in his mind more firmly than any description or book study can do, and prevents him from making those ludicrous and oftentimes embarrassing errors which are met with by those who have not been fortunate enough to have such training in their student days.

Beyond this amount of pharmaceutical teaching we do not believe that it is the function of the medical college to go. If a physician desires to be thoroughly equipped as a pharmacist, he should gain such information from a college of pharmacy, for a full grasp of the character of information which we have outlined will certainly be sufficient for his necessities as a practitioner of medicine.

STERILIZATION OF THE SKIN.

Aside from the thorough mechanical cleansing with brushes, soap, and hot water, which is the basis of all the methods practiced for the sterilization of the surgeon's hands, there is a wide divergence of opinion as to the best way in which this end may be obtained. There is, moreover, much evidence to show that a thorough sterilization, and one which will last throughout a long operation, is not certainly attained by any of the methods commonly in use, and indeed is theoretically not attainable.

Of the chemical agents employed for the purpose of destroying microorganisms which have not been removed by mechanical means, alcohol, carbolic acid, and bichloride of mercury are in commonest use. Fürbringer states that alcohol used alone, without either carbolic acid or corrosive sublimate, is much more efficient than when these agents are combined with it.

Senger (*Arch. f. Klinische Chirurgie*, 59 Band, 2 Heft) shows that in so far as the staphylococcus aureus is concerned alcohol exhibits in culture media, at the most, simply an inhibiting effect, which is distinctly more marked in a fifty-per-cent solution than it is when absolute alcohol is used. When, however, alcohol is rubbed upon the porous skin which has previously been softened by water and an alkaline soap, it is not unlikely that it may form antiseptic combinations much more potent than the drug itself, analogous to formalin, which is produced by oxidation of methyl alcohol, thus explaining the fact that in spite of laboratory findings alcohol is an excellent disinfectant for the hands. The addition of carbolic acid to the alcohol forms a phenol-ether of weak antiseptic power, thus explaining Ahlfeld's and Mikulicz's findings to the effect that hands treated with alcohol and carbolic acid were much richer in germs than those treated by alcohol alone. Experiments with culture media showed that germs which were destroyed by a five-per-cent watery solution of carbolic acid grew richly when treated with a five-per-cent alcoholic solution of the same drug.

On the basis of both laboratory experiments and clinical experience Senger holds that the reaction method of skin disinfection yields by far the best results. By the term reaction method he designates the use of a series of chemicals which, when brought into contact with each other, undergo a reaction, with the production upon the skin, and in a nascent and hence more potent form, of antiseptic substances.

By the use of potassium permanganate, hydrochloric acid, and sulphurous acid there are formed free oxygen, chlorine, and sulphuric acid, each a prompt and energetic antiseptic. Moreover, the drugs used to accomplish the necessary reaction are in themselves potent antiseptics. Sulphurous acid seemed to act more actively and effectively than hydrochloric acid, which in turn is much more efficient than potassium permanganate.

The method of applying this reaction disinfection is as follows: The skin is first brushed for five minutes with an alkaline soap and water as hot as can be borne with comfort. It is next brushed for two minutes with weak alcohol (fifty per cent); next for two minutes with a warm two- to five-per-cent solution of hydrochloric acid; next for one minute with a half-per-cent solution of potassium permanganate; finally, with an eight-per-cent watery solution of sulphurous acid until the manganese coloration has entirely disappeared. This requires but a few seconds.

To determine the thoroughness with which the skin was disinfected by this method, Senger excised small pieces and placed them in culture media. Of twenty-four cases thus treated, six showed growths, giving seventy-five per cent of successes. Santer, who applied a green soap poultice for one hour, followed by brushing with alcohol, a five-minute rubbing with green soap, a one-minute rubbing with alcohol, a one-minute rubbing with three-per-cent carbolic solution, and a one-minute rubbing with 1-to-2000 corrosive chloride solution, failed in about seventy per cent of his cases; while Lauenstein, who repeated his washings for several days, employing in the meantime wet bichloric compresses, failed in forty-three per cent of his cases.

A method similar in principle, but differing from the facts that sulphurous acid is not used at all, the permanganate is in much stronger solution, and oxalic acid is substituted for hydrochloric acid, has long been employed at the Johns Hopkins Hospital, and because of the admirable clinical results following its use, has become popular in this country. The addition of sulphurous acid would seem of service, since it is cheap, does not irritate the skin, and is in itself a powerful antiseptic, at least in so far as pus germs are concerned.

A great advantage of these reaction methods depends upon the fact that they are

infinitely less irritating than carbolic solutions of adequate strength, and to many persons are even less irritating than the corrosive chloride solutions which are commonly employed. Any method which leaves the skin of the hands fissured and chapped makes subsequent disinfection difficult if not impossible.

The ultimate solution of the difficulty attendant upon hand sterilization will, with little doubt, be dependent upon the general adoption of a thin rubber operating glove. The skin of the operative area will, however, be a possible source of infection till a method of destroying the deeper-lying germs has been devised more potent than any now employed.

Reports on Therapeutic Progress

ON THE SAFETY OF LUMBAR PUNCTURE IN CHILDREN.

In an editorial on this topic *Pediatrics*, in its issue of July 1, 1899, does well to point out that whenever a new operative procedure promises well, both as a diagnostic and therapeutic resource, and is well adapted for routine employment because of its technical simplicity, our wonder, excited at first because such a contribution to progress was not made long ago, becomes doubly great when we perceive how little headway has been made by the profession in doing justice to the innovation. The operation of lumbar puncture, devised by Quincke in 1891, has by no means become a popular procedure despite its many enthusiastic advocates. It is very evident that the technical difficulties, slight though they be, or a belief in the meddlesome and dangerous character of this form of operative interference, is held to more than offset the possible benefits which this operation might confer upon diagnosis and therapy. In revising the study of this subject to date, the fact must not be ignored that the operation of lumbar puncture has an independent relationship to the science of pediatrics. It is quite probable that in the case of adults the technical difficulties may be considerable, the field of usefulness circumscribed, and the danger of accident great, when compared with the results of pediatric practice.

Pfaundler, working in the clinic of Professor Escherich, of Graz (where so many important contributions to pediatrics have been made), has recently completed a series of 200 lumbar punctures in children. With regard to the safety of the operation, he reports no serious accidents, while pain, hemorrhage, and danger of infection proved to be insignificant. A review of the literature assures him that other observers have likewise been satisfied with the results which they have obtained in children. Mishaps of any sort seem to be isolated and not inherent to the operation itself. Pfaundler states that owing to the superficial position of the vertebral arches in the child, together with the relatively greater spaces between them, puncture is readily effected. The lowest interspace, or lumbosacral hiatus, is the locality to be chosen for the puncture. The original puncture should always be made with the child sitting erect, in order to tap the lowest point of the column of cerebrospinal fluid, and thereby to secure a representative drop of sediment. The serious accidents which have been reported in connection with puncture have either happened to adult patients or have been due to intentional puncture into the ventricle, which is a very different operative procedure from tapping the subarachnoid space.

So far as the utility of lumbar puncture is concerned it may be said that this operative procedure has a double field of usefulness, as it not only aids materially in diagnosis, but fulfils therapeutic indications as well. Under the head of diagnosis, the first step, according to Pfaundler, is to determine the subarachnoid pressure. When this is taken in the erect sitting posture it varies between 20 and 25 millimeters of mercury in health, while in chronic hydrocephalus or tubercular meningitis it may run up to 40 millimeters and even much higher. The difference between the pressure in the erect and recumbent postures is nearly one-half, owing to the disappearance of the hydrostatic pressure when the child lies down. After death the pressure falls by more than one-half, on account of the cessation of the heart's action. In a dead child, in the recumbent posture, the slight remaining pressure (about two millimeters) is due to the elastic wall of the subarachnoid sac. The subarachnoid pressure is therefore complex, and decomposable into vascular or vital, hydrostatic, and elastic. These studies in manometry, while of much interest and significance, are not adapted for routine clinical work outside of hospital practice. With regard to the clearness of the fluid obtained by tapping, the admixture of decomposed blood implies the

presence of an antecedent trauma or pachymeningitis. If the fluid is clear, all inflammatory affections, aside from tubercular meningitis, may be readily excluded. In the latter disease the fluid is always clear at the outset and may even remain so throughout, but there is often present a peculiar cloudiness or opalescence. In the same affection the formation of a peculiar coagulum upon standing is almost pathognomonic. Much may be learned from a study of the sediment, as in meningeal disease of any sort abundant pus and blood-corpuscles and desquamated endothelia from the ependyma are present. Another almost certain indication of the presence of tubercular meningitis is the occurrence of a large amount of albumin in the fluid. The bacteriology of the subarachnoid fluid comprises the constant presence of the tubercle bacillus, pyogenic cocci, and Weichselbaum's meningococcus in the corresponding disease, tubercular, suppurative, and epidemic cerebrospinal meningitis. With regard to therapy, the indications for puncture are to lower intracranial pressure and thereby remove symptoms due to pressure and irritation (headache, delirium, convulsions), and to drain away pathogenic bacteria and toxic products. There is no doubt that puncture has been successful in curing cases of epidemic cerebrospinal meningitis.

A FORMULA FOR SUBACUTE CONJUNCTIVITIS.

Ichthyol, 7 grains;
Oxide of zinc, 30 grains;
Lanolin,
Vaselin, of each 2 drachms.

—*Journal des Praticiens*, May 13, 1899.

ON THE TREATMENT OF TUBERCULOSIS.

The *Montreal Medical Journal* for July, 1899, contains an article by BLACKADER in which he gives the following details as to the management of tubercular patients. In considering the subject of diet of these patients, it is only necessary to emphasize the importance of the maintenance of nutrition as a factor in the treatment; tuberculous patients with active disease require a much larger quantity of food than those in health, to compensate for the increased waste of tissue; and if digestion is unimpaired, they can usually assimilate well this increased amount. The food as supplied at ordinary meal hours should be plain, well cooked, and nourishing, but at the same time savory, and varied in character. In addition to the ordinary meals it is often desirable to furnish these patients with some liquid, easily digested food between meal hours; a cup of hot coffee or tea containing a large proportion of milk, given the first thing in the morning shortly after awaking, relieves cough, assists expectoration, and at the same time counteracts the feeling of exhaustion which often follows the morning spell of coughing and distinctly interferes with the enjoyment of breakfast. At 11 A.M. a tumblerful of milk or beef tea, a cup of some nourishing but easily digested farinaceous food, taken warm, relieves the irritating cough, and tends to induce sleep. As an interne at Brompton Consumption Hospital, Dr. Blackader had frequent occasion to note the marked improvement in appetite and nutrition which followed the employment of simple stomach remedies, such as a mixture containing sodium bicarbonate with a simple bitter, or nitrohydrochloric acid with nux vomica. He says he is not surprised, therefore, to note that Kingston, in a recent article in the *Practitioner*, and Fowler, in his late work on Diseases of the Lungs, both emphasize the value of such simple medication.

Alcohol in general is of value only so far as it favors the digestion and assimilation of food. In patients who rapidly increase in weight, and who show any tendency to increase of pulse tension, it may favor hemoptysis, and is therefore to be avoided. Cod-liver oil is our most rapidly absorbed and most easily assimilated fat; it is, therefore, a food as well as a medicine of acknowledged therapeutic value. The majority of tuberculous patients take cod-liver oil with advantage, and many authorities acknowledge that a patient will gain weight while taking cod-liver oil, although he fails to do so under other medicines. Should it impair appetite, give rise to acrid eructations, or increase diarrhea, it should at once be discontinued. Hydrotherapeutic measures are among the most valuable adjuvants in the treatment of the disease. Cold compresses are extremely serviceable for the relief of many of the minor ailments of tuberculous patients; while the cold sponge or douche, taken in a regular, methodical way, is of great value in toning the vasomotor system, and preventing the tendency to "catch cold" easily, so notable in many tuberculous patients. The best chest protector, says Ransome, consists in well douching

the chest night and morning with quite cold salt water.

In regard to special medication, there is no occasion to repeat what must be well known facts. In Dr. Blackader's opinion, every accessory means of improving general nutrition should be taken advantage of, while all nauseating or depressing drugs should either be altogether avoided, or used in the most sparing quantities. Strychnine, as a stomachic and general cardiac and respiratory stimulant, will in many cases prove of great service. Creosote in moderate doses is occasionally of much service in checking fermentation in the alimentary tract; it also appears to be of decided benefit in cases associated with much bronchial irritation or secretion. Stubbert has employed ichthyol in keratin-coated pills with much success, especially in patients suffering from intestinal complications. He states that in a number of patients treated with ichthyol in daily doses of from six to ten grains, the results on weight, expectoration, cough, and the disappearance of bacilli were ten per cent better than those obtained from the employment of creosote or any of its derivatives. Dr. Blackader's own experience with the drug has been too slight, he states, to draw any conclusions.

SOME ASPECTS OF CHRONIC MALARIAL INFECTIONS AND THEIR TREATMENT.

W. H. THOMSON, in an article on this subject in the *New York Medical Journal* of July 15, 1899, tells us that it has been a matter of common experience, especially in the treatment of malarial fevers in the tropics, that the action of quinine appears to be promoted by the simultaneous administration of various spices. The remarkable farrago of compounds in Warburg's tincture, the original formula of which is said to have called for seventy-six ingredients, doubtless owes much of its efficacy in chronic malarial disorders to its predominant proportion of spices. Dr. Thomson, therefore, has been accustomed for many years to prescribe powdered ginger along with quinine, in equal quantities, and he has felt convinced that he could get along with smaller doses of the quinine itself by adding the ginger in the treatment of our ordinary intermittents. He says he has known ginger alone, administered in a large dose in hot milk, to break up chronic ague of the quartan type when quinine had conspicuously failed. In a number of cases he has also added pulverized capsicum, a grain to four of quinine, and it is curious that the first dose of this combination often acts as a free purgative.

But cases of chronic and severe malarial infection are continually occurring in which quinine seems wholly to fail to cure the disease. Such a problem confronted him when his colleague at the Roosevelt Hospital, to whose service he succeeded on the 1st of September, told him that the soldiers in the wards had been there from the 17th of August, and that, though he had tried every form of administering quinine as to dose or method, as well as Warburg's tincture, and free administration of arsenic, yet the general results had been very unsatisfactory. In some cases large doses of quinine held the temperature for a few days, but only to be followed by relapses. The best results with this drug were in patients who had true intermissions, but these were a small minority, the fever with most of the others running a continuous but very irregular course, the predominant form of the plasmodium being of the estivo-autumnal variety. Dr. Thomson determined then to try the most ancient of known remedies against malarial poisoning —namely, opium—as an adjuvant to quinine. Forty-seven of the actively febrile cases, with temperature ranging from 103° to 106° F., were chosen, while check cases in equal number at first were left with the former treatment. He chose the camphorated tincture of opium as the most suitable preparation on account of its stimulant properties, and gave it in three daily doses of half an ounce each, with doses of fifteen grains each of quinine and of ginger twice a day.

As Dr. Thomson has already published a detailed account of his observations on the effects of the camphorated tincture of opium as an adjuvant to quinine in these Roosevelt Hospital cases, he quotes from it the following: "In twenty-two, or forty-seven per cent, of the number who took paregoric, the result was an immediate break in the fever—that is, the temperature fell to normal in twenty-four hours, nor did it rise again afterward. This effect was the more impressive because in every instance they had been unavailingly treated with quinine and Warburg's tincture for an average period of ten days previously without reducing the fever. Of the remaining twenty-five out of the forty-seven there were ten patients, or about twenty-one per cent, in whom it took from thirty-six to forty-eight hours to reduce the temperature

to normal. No relapse was recorded in the case of any patient who took paregoric treatment after the temperature was once reduced to normal."

Sir William Roberts, chairman of the British Royal Commission, appointed to investigate the opium question in India in the years 1893–94, maintains that the antimalarial properties of opium are due to its alkaloid, commonly named narcotine, but which he maintains should be termed anarcotine, as it has neither anodyne nor narcotic properties. The proportions of the two alkaloids in Smyrna opium are morphine eight per cent, narcotine two per cent; while in Bengal or India opium the proportion is morphine four per cent, and narcotine six per cent. In many cases, according to the voluminous statistics of British India surgeons, narcotine administered alone has been more efficacious than quinine as an antiperiodic. One of the most striking effects of the paregoric treatment in Dr. Thomson's hands was its unlooked-for antistuporous properties, so to speak. Instead of manifesting the usual symptoms of opiates, many of the actively febrile patients were roused by it out of the characteristic lethargy of the fever, and even in the weak apyretic patients with pronounced anemia the testimony was almost uniform that they felt better and stronger after taking it, the effects appearing the very reverse of narcotic and more like those of a cardiac and general nervous stimulant. He has noted analogous results also in private practice in the treatment of chronic malarial infection, notably when the patients complained of repeated headaches and general malaise, so that he has no hesitation in recommending this preparation of opium as one of the most trustworthy agents in the management of this common cause of prolonged invalidism in our climate.

THE TREATMENT OF SUMMER DIARRHEA IN INFANTS.

The *Medical News* of July 15, 1899, contains an article on this subject by CHAPIN which is apropos, in view of the articles published in the GAZETTE. Like all other writers on this topic he believes that in the dietetic treatment of summer diarrhea, as a majority of the cases consist largely of milk poisoning, all forms of milk must be temporarily withheld. Even the breast may be withdrawn in nursing babies until vomiting ceases. In the interval water may be frequently given, but in small quantities at a time, if the stomach tends to reject it. The common mistake is in giving too much nourishment at this time, as the infant seems to be weak and in need of support. It is not the food taken but that which is assimilated that supports, hence it is folly to force milk upon a baby at a time when the digestive powers are weakened, if not entirely arrested. Many a summer diarrhea would be stopped at the very beginning if milk were entirely withheld for from twelve to forty-eight hours.

When it is necessary to withhold milk for any length of time, other forms of nourishment may easily be substituted. One of the most easily procurable and satisfactory is egg-water. The white of an egg is thoroughly stirred in half a glass of cool water. This forms a pure and easily assimilable albumen-water. The only objection is its tastelessness, and Dr. Chapin has overcome this by the addition of about ten drops of aromatic spirits of ammonia. In case there is a tendency to vomit, this aromatic stimulant in small doses, as above, seems to check the stomach irritation.

Among other substitutes for milk may be mentioned thin gruels made from barley or wheat flour and cold whey. When the cereals are used, the starch may be easily dextrinized by one of the preparations of diastase that are now on the market. If cow's milk is withheld for several days or longer, mutton broth from which all the fat has been carefully skimmed makes a good substitute. Expressed beef juice with the fat removed and diluted with cool water makes a stimulating and nourishing drink.

When the acute symptoms have subsided and milk is resumed, it must be tentatively begun at long intervals and with high dilution. If a prescription to be filled at a laboratory were written it might call for fat, 1 per cent; sugar, 4 per cent; proteids, 0.50 per cent; or plain fresh milk may be diluted five or six times with sugar-water. By thus starting with a considerable reduction of the casein and fat, these solids may be gradually increased to a proportion that is proper for the infant's age and development. The difficulty of digesting the tough curd of cow's milk is a constant source of trouble. After trying various methods of overcoming this difficulty, a proper dilution of the milk with decoctions of the cereals as advised many years ago by Jacobi has yielded the best results in Dr. Chapin's hands. In hot weather a gruel made of wheat or barley flour, and

partially or completely dextrinized, will modify and attenuate the clots of casein in a favorable manner.

In a series of experiments recently made through the courtesy and with the cooperation of Prof. Graham Lusk at his laboratory in the University Medical School, liquid rennet was added to various preparations of milk and heated to 40° C. Equal parts of barley-water and milk gave smaller and more flocculent curds than equal parts of plain water and milk. A dog with gastric fistula was fed on consecutive days with these solutions, and the contents of the stomach withdrawn at the end of half an hour. The clots were finer and apparently more digested when the barley-water and milk was used than in the case of plain water and milk. Aside from the results of such experiments, the clinical effect of diluting with the gruels must commend their use. Babies are less apt to vomit tough, stringy curds, or to pass them by the bowel.

The medicinal treatment usually assumes less importance in direct proportion as the preventive and dietetic management are carefully followed. Indiscriminate and abundant drugging in this disease is now relegated to the limbo of the past—astringents, antiseptics, and opiates alike. The real indications for drugs are few and easily apprehended. As summer diarrhea is so apt to be of a putrefactive nature, all agree upon the necessity of completely clearing out the gastrointestinal tract as a necessary start in treatment. In most cases, when the physician is called, the stools are loose and there may be vomiting. By at once stopping all milk the stomach is soon emptied, and the principal indication is to clear out the bowel. If vomiting continues, drafts of tepid water may be administered, which, when rejected by the stomach, washes out that organ. Dr. Chapin does not believe it is often necessary to wash out the stomach with the tube. Sometimes when there is excessive irritation of the stomach, with much production of mucus, one washing out, however, will give relief. Dr. Chapin usually employs tablet triturates of calomel, one-tenth of a grain every hour, until six or eight have been administered. These small doses act as a sort of stimulant to the bowel, increase glandular secretion, and usually effectively clear the canal of its fermenting contents. The drug is also supposed to have some antifermentative effect. A good sized dose of castor oil is also effectual, and is followed by a sedative effect on the mucous membrane. If the stomach is very irritable, it may be difficult to administer on account of vomiting. Elimination may sometimes be hastened by irrigation of the lower bowel with normal salt solution. Mucus as well as fermenting milk may be thus removed. For those not accustomed to this procedure, a hard-rubber rectal tube is preferable, as the soft tube bends on itself on account of the length and marked curve of the sigmoid flexure in infants.

The drug that Dr. Chapin has found most useful in the summer diarrhea of infants is the subnitrate of bismuth in large doses. As far as he has observed the subcarbonate, salicylate, and subgallate of bismuth and betanaphthol bismuth have no decided advantage over the subnitrate, which is everywhere procurable. A baby of from six to twelve months can take from ten to twenty grains of the subnitrate every two or three hours. The insoluble quality of the bismuth and its sedative local effect make it most valuable. Irritation and fermentation, even under proper dietetic management, remain longest in the ileum and colon, and this tract is reached by the local action of the bismuth. Most of the so called antiseptics have irritating qualities, and he does not think that even in antiseptic action they act better than large doses of bismuth.

It is manifestly impossible to put the intestinal tract in any condition that can be called antiseptic by the administration of drugs. Small doses of aromatic spirits of ammonia, ten to twenty drops, well diluted with water, seem to stimulate the mucous membranes and refresh the infant. Dr. Chapin gives alcohol very sparingly in these cases, as it seems to lower the digestive powers. In case of great weakness or collapse, from ten to thirty drops of whiskey may be given well diluted. Formerly he gave whiskey almost as a routine treatment in these summer diarrheas, but now it is used only for special indications and temporarily. If the discharges are profuse and exhausting and the baby sinks into a semistupor, with depressed fontanel, very free stimulation by whiskey and ammonia is indicated, as spurious hydrocephalus is thus ushered in.

There is one drug that was formerly much abused, and is perhaps not used enough now in proper cases, namely opium. It should never be given combined with other drugs; indeed, diarrhea mixtures of all kinds are to be deprecated. Opium is contraindicated until the

bowel has been thoroughly emptied of irritating contents, when the stools are scanty and foul-smelling, and when cerebral symptoms threaten. In cases, however, in which rapid peristalsis and profuse glandular secretion persist, a few moderate doses of opium are most valuable and may aid in saving life.

A CLINICAL STUDY OF TWENTY-FOUR CASES OF PARALYSIS AGITANS, WITH REMARKS ON THE TREATMENT OF THE DISEASE.

COLLINS and MUSKENS, in an article with this title printed in the *New York Medical Journal* of July 8, 1899, in discussing the treatment of this affection, state the well known fact that unfortunately no medicament has yet been discovered that has any influence in shaping the course or changing the outcome of this disease. Beginners in the art of therapy should keep this in mind, and thus spare themselves the trouble of attempting a cure by any of the drugs—and their name is legion—that have been recommended during the last half century. Energy of this kind and zeal for experimentation may be legitimately expended, perhaps, in trials with new drugs and other health-restoring measures. But it should not be forgotten that one is not always justified in elevating the hopes of the patient for recovery so high or so often that when the promises are not fulfilled their confidence is so completely shattered that only harm results. Despite this depressing estimate of the value of drug medication in the treatment of paralysis agitans, much can be done to alleviate the symptoms, to prolong the patient's life, and to make him more comfortable. As in all other nervous diseases, the dietetic and disciplinary treatment are of the greatest importance. Their value is very conspicuously seen in patients who early in the course of the disease are obliged to seek the shelter of a hospital. Although they are apparently and really not very ill, as wage-earners they are incapacitated. The regular mode of life, and all that is implied by hospitalization, is conducive to avoidance of wear and tear, and such patients continue year after year without any material change except slight increase of rigidity, tremor, and the other cardinal symptoms. The first indication, then, is for the arrangement of an uneventful life, free from care, strife, excitement, and sordidness, in a congenial environment and healthful climate. As a rule, a cool climate is far more grateful to these patients than a hot one. Residence in the country or in the suburbs, where a maximum of fresh air, sunlight, and sleep are to be had, with a minimum of demand on the mind and the body, meets the requirements, providing the vital force of the patient is not put to a severe test in withstanding extremes of temperature.

The diet should be of a simple, nourishing, strengthening kind, and close attention must be given to the functions of digestion and of absorption, so that the bodily weight may be kept at the level which was normal in health. The comfort of the patient can be materially added to by regulation of the bowels and other eliminative avenues. It is absolutely necessary that the patient have the personal care of an attendant or of one of the family. Disastrous accidents have not infrequently followed neglect of this précaution. The customary measures for the maintenance of general muscular tone and nutrition, so serviceable in many functional and organic nervous diseases, such as the application of water and electricity, the use of massage and gymnastics, are not so appropriate in this disease as they are in many others. Nevertheless, lukewarm baths, of from twenty minutes to half an hour's duration, are oftentimes very soothing to the patient, and have a tendency to make the muscular rigidity less dominant. Moreover, they contribute to a moderate feeling of well-being, and assist toward the realization of refreshing rest, for which the patient generally clamors.

In patients under forty years of age, the application of water from 90° to 75° F. from the hand of an attendant, followed and accompanied by friction, is sometimes serviceable in combating the distressing attacks of local and general heat of which the patient complains. This measure can be utilized daily with patients who react well after it. Reaction may be facilitated by having the patient wrapped in a hot blanket previous to the ablution, by having him stand in hot water during the bath, and by light massage and external heat following it. Massage, applied as stroking and light kneading, fulfils practically the same purpose and is utilized for the same ends It tends to lessen the spasticity, to improve the general nutrition, and to increase the patient's capacity for rest. Papotement or percussion should be avoided. Swedish gymnastics have been warmly recommended by some writers, but Collins and Muskens state they have never

seen anything but detriment attend their use. The same may be said of suspension, which has been plentifully tried, and of nerve-stretching. They are mentioned only to be advised against.

A few years ago Charcot promulgated the fact that many of his patients with paralysis agitans were more comfortable during and after a short ride in a jolting vehicle. Assuming that the jarring and vibrations had a soothing effect on the nerve centers from which arise the tremor and rigidity, this clinician had a chair so constructed that the patient or an attendant could, by pushing a pair of upright handles backward and forward, communicate vibration to the entire body. Such a chair was in use for many months in Dr. Collins's clinic, but nowadays it subserves only a single purpose—a seat. Its usefulness is no greater than that of other vibratory apparatus, such as the one for the head, that have been constructed with a similar end in view.

Electricity has practically no place in the therapeutics of paralysis agitans, excepting so far as it is a potent agency for suggestion.

One of the most striking results of treatment in paralysis agitans is the temporary amelioration of all the symptoms on undertaking any new form of treatment. There is now under observation a man in the advanced stage of the disease who some years ago maintained that he was materially improved by some mechanical treatment given him by another physician. On inquiry, it was found that the "treatment" consisted of taking a few tracings of the tremor. Oppenheim states that he has seen considerable benefit follow the electric bath, and especially the application of the dipolar faradic current, but it is not improbable that the bath alone would have been accompanied by quite as much improvement.

The drugs that are in use for paralysis agitans, and from which some benefit in dissipating symptoms and fulfilling pointed indications may be expected, are hyoscyamus and duboisine, Indian hemp, opium, hematogenous agencies, such as arsenic and iron, and occasionally gelsemium and veratrum viride. Of these, the most important by far are the two first mentioned. Given hypodermically, which is the preferable way when possible, or by the mouth, they promptly mitigate the severity of the tremor, and have a pronounced tendency to relax the muscular rigidity. They are both powerful toxic agencies, and must therefore be given with care. Hyoscyamus (hyoscine hydrobromide, $\frac{1}{150}$ to $\frac{1}{80}$ of a grain) is said to have more advocates than duboisine, but personally Collins and Muskens prefer the latter. Its administration is not so apt to be attended by disagreeable symptoms, while the effects are ccequal. The sulphate of duboisine should be given in from $\frac{1}{100}$ to $\frac{1}{60}$ of a grain, two or three times daily. On the accession of vertigo, cephalic paresthésia, disturbance of vision, nausea, dryness of the mouth and tongue, it should be stopped at once.

In many instances the administration of either of these drugs is followed by almost complete cessation of the tremor for a shorter or a longer time, but usually for several days. Unfortunately they apparently have slight effect in mitigating sleeplessness, amyosthenia, and the feeling of unrepose that so many patients complain of. When these become too burdensome for the patient to bear them unaided, oplum or its alkaloids, preferably morphine, must be given, and especially to cause rest and sleep in advanced cases. Earlier in the disease reliance can be placed on the less baneful sleep-producers, such as sulphonal, trional, paraldehyde, etc., given in the same way as they are for idiopathic insomnia. The salts of salicylic acid, particularly those of sodium and potassium, have been widely recommended, especially during the last ten years, probably suggested by the patient's complaint of rheumatic pain and by the occurrence of other more characteristic phenomena of rheumatism. After thorough trial, Collins is convinced that such medication is quite useless. Considering the profound degree of depression in neuromuscular tone which patients with this disease have, it seems incredible that the bromides have ever been recommended or given, but unfortunately they have been. They are powerful agencies for harm, and the thought of their administration should never be harbored. In some instances, especially in those cases that are not benefited temporarily by duboisine or hyoscyamus, some mitigation of the tremor and rigidity may be obtained by the administration of gelsemium or veratrum viride in from three- to five-drachm doses, three times a day. These drugs have served more satisfactorily as symptom medicines than Indian hemp, which has the recommendation of Gowers, and which has been widely used.

THE TREATMENT OF CHOREA.

The *Archives of Pediatrics* for August, 1899, editorially discusses how we should treat chorea. It believes that the mildest case of chorea should receive prompt treatment, not of necessity, however, by drugs. Rest is the most important factor in the treatment of the disease. The child, no matter how slight the movements may be, should be taken from school at once. He should be allowed to come in contact only with his own brothers and sisters, and with them only for limited periods during the day. He should be removed from all excitement, and all reference to his condition should be studiously avoided. Above all things, he should be removed from the possibility of ridicule or thoughtless reference to his misfortune. The parents should be particularly cautioned not to punish the child for any act resulting from weakness or from the choreic movements.

In mild forms of the disease absolute rest in bed may not be advisable. But even in that condition the child should be kept in bed each day longer than is his wont in health. In severe and increasing cases absolute rest in bed should be insisted upon. As the disease improves the child may be allowed to be up for two or three hours, the daily period being gradually lengthened. The diet must also be regulated very closely. Sachs is certainly very near the truth when he says: "Milk and rest will do more for most cases of chorea than any other two measures." This treatment is most effective in the early stages, a time at which medication is least effective. It is entirely true that the rest treatment may be overdone, and judgment must be used, lest by its overcontinuance the monotony and lack of fresh air may counteract its benefits.

The question of exercise is one which demands sound judgment and must be decided largely upon the conditions present. When the disease is subsiding, exercise is certainly beneficial, but it should never be carried to the point of overfatigue, and exciting games of every kind should be proscribed. Upon the question of returning to school and resuming piano practice and more active games, it is wise to err upon the side of overcaution.

The tendency of chorea to recur should not be forgotten. Children who have once suffered from it should be watched for premonitory symptoms, it being remembered that the disease is far more common in the spring than at any other time of year. They should not be overcrowded in school, and should be particularly guarded against attacks of rheumatism.

The medicinal treatment of chorea is important, and when judiciously employed is of exceeding great value in controlling the disease, but the importance of combining with it the proper hygienic and dietetic management cannot be stated too positively. Differences of opinion regarding such treatment, it must be said, are less marked than in most other diseases. One drug is almost universally acknowledged to be of value—namely, arsenic. Its value in non-rheumatic cases is unquestionable. While its effects are not so pronounced in cases of rheumatic origin, its value even in them is usually great.

The dose of arsenic is frequently so small that no beneficial results are obtained. Beginning with three drops of Fowler's solution three times a day, it should be increased one or two drops a day until nausea or abdominal pain occurs or puffiness appears about the eyes. Treatment should then be stopped for twenty-four hours and then resumed, the dose being several drops below the highest previously given. The dose should again be gradually raised.

In many cases no improvement will be seen until slight constitutional effects are obtained. Unless distinct improvement is seen, the drug should be pushed to the point of tolerance. Twelve drops three times a day is usually the limit for a child of seven or eight years. Larger doses are frequently given, but they should be administered with the utmost caution. When these large doses have been reached, if no improvement is seen, other measures should be tried. Cases of multiple neuritis have been reported, resulting, it would seem, from excessive doses of arsenic. Its use in large doses demands the greatest caution and good judgment, and the patient while taking it should be kept under close observation.

Fowler's solution should never be given on an empty stomach. It should always be administered greatly diluted. It will thus produce very little gastric irritation. In prescribing the solution, it is wise to dilute it with one or two volumes of water, the dose being increased in equal proportion. Possible errors in measuring the dose thus become of less importance.

In rheumatic cases, particularly those in which acute rheumatism is present with the

chorea, salicylate of sodium is of great value Under such conditions it is usually more efficacious than arsenic. It should be given in full doses, and the rheumatic symptoms should be brought under control as quickly as possible.

The use of antipyrin occasionally produces very brilliant results, and as often fails entirely. In our own experience it has proved most effective in nervous girls in whom the rheumatic tendency was slight. In cases which apparently result more or less directly from overwork at school or from neurotic conditions, it often proves very effective.

When the sleep is broken, trional is an excellent and very effective drug. In cases of great severity, where the violence of the movements and the interference with sleep threaten to consume the strength of the patient, bromide and chloral, or even codeine or some other preparation of opium, may be required; but such drugs should only be used in cases of extreme necessity.

Anemia is such a constant accompaniment of chorea that it should always receive attention. Some preparation of iron is almost without exception indicated. The bitter wine of iron and syrup of the iodide of iron are particularly good preparations.

The natural history of chorea should not be forgotten in deciding upon the effects of treatment. After the third week the results of treatment are far more favorable than before that time, for the disease is then in its decreasing stage, or at least past the stage of increase. Failure to remember this fact accounts for many of the differences of opinion regarding the effect of drugs upon chorea.

THYROID MEDICATION TO HASTEN THE UNION OF BROKEN BONES.

There is perhaps some danger that, from having been contented for centuries with looking upon the thyroid gland as of no consequence, we may go to the opposite extreme of expecting it to accomplish things utterly beyond its power. In the *Écho Médical du Nord* of June 11, 1899, Dr. Lambret, chief of the surgical clinic of Lille and a railway surgeon, expatiates upon this proposition, and then comes down to the matter of the influence of the internal secretion of the gland on the osseous system. He is at some pains to recapitulate the leading observations on which we rest our present views of the part played by the thyroid in increasing the stature by its action, and of the relation of its defective action to dwarfing, rickets, cretinism, myxedema, etc. He recounts, in particular, that in 1895 Hanau and Steinlein reported to a congress held in Frankfort their observations of the tardiness of the union of broken bones in animals that had been deprived of the thyroid gland, and suggested, as a corrollary, the use of thyroid medication for promoting the formation of callus; also that in 1897 Gauthier recorded in the *Lyon Médical* his successful adoption of this hint in practice, a course which Quénu and Folet, too, found efficient, although the last named gentleman failed with it in one instance. There is good reason, then, to look upon thyroid medication as likely to prove of service in cases of delayed union of fractures.

But this is not all. There appears to be some ground, in the shape of a case reported by the author, for hoping that the same treatment may so hasten the union of broken bones as to shorten materially the time usually required for their repair, although he admits that no broad conclusions should be drawn from a single instance. The case was that of a man whose tibia and fibula were broken in a car-coupling accident. On the day after the injury he was put upon the use of capsules, each containing three grains of thyroid gland, three daily. On the seventeenth day union was found to be solid. All appliances were removed, and the man was allowed to get up. In these days of time-saving it is assuredly worth while to resort to Dr. Lambret's treatment in cases of fracture, and it ought not to take long to estimate its value.—*New York Medical Journal*, July 8, 1899.

THE CHOICE OF DRUGS TO DILATE THE PUPIL.

JACKSON, of Denver, who is well known for his work on refraction and retinoscopy, in writing in the *Medical News* of August 12, 1899, upon this theme points out that the influence of certain drugs in producing dilatation of the pupil is so striking and so characteristic that they are mostly grouped under the name mydriatics. The most of these resemble each other closely in all their physiological actions and therapeutic capabilities. Yet several of them differ sufficiently in their influence to render the one or the other distinctly superior in certain cases; and one drug, cocaine, differs from the others so completely as to place it quite outside the group of true mydriatics, although it possesses a

power of dilating the pupil that is of the highest practical value. Along with their power of producing dilatation of the pupil (mydriasis), these drugs all possess in varying degree the equally useful power of causing paralysis of the ciliary muscle (cycloplegia). In this paper their action as cycloplegics will not be referred to except as cycloplegia may be a valuable adjunct or a distinct disadvantage in their use as dilators of the pupil.

As the basis for choosing the particular drug most appropriate for a particular case, we have their somewhat different physiological actions on the pupil. Ten or twelve minutes after a drop of a solution of atropine 1 to 120 (four grains to the ounce) is placed in the conjunctival sac the pupil begins to dilate. The dilatation increases rapidly; the pupil at first reacts well to light, but is less and less affected by illumination as it grows larger. In fifteen or twenty minutes after it begins to dilate the maximum size of the pupil that can be produced by atropine is reached, and it becomes quite fixed, failing to respond to any of the forms of stimulation that produce reactions in the normal pupil. For about two days this condition remains unchanged. Then the pupil very slowly becomes smaller, and at the same time its reactions gradually return, until at ten or fifteen days after the application of the drug it has again become normal Repeated instillations of such solutions prolong to any desired extent the period of complete dilatation, and recovery may be slower. Dr. Jackson says he has seen three full weeks elapse between the last instillation and complete recovery.

Reference is here made to complete recovery, the period of which can only be accurately determined when the drug is used in but one eye, the other being kept normal as a standard of comparison. Often in six or eight days recovery may be so far advanced that no great inconvenience is experienced from the remaining dilatation, and after that the recovery is so very gradual that some patients still think it not complete long after every trace of the action of the drug has passed away.

Dilatation of the pupil by atropine is accompanied by paralysis of the ciliary muscle and suspension of the power of accommodation. This begins with dilatation, reaches the maximum in one or two hours, remains complete for about two days, and then slowly passes off as the pupil contracts. With smaller doses of atropine the period of complete dilatation is shortened. A drop of a solution of 1 to 2000 does not produce complete dilatation and fixity of the pupil; and the return to normal will occur in eight or ten days. Of a solution of 1 to 500,000 a single small drop, containing less than one-millionth of a grain of atropine, will produce a perceptible enlargement of the pupil lasting from thirty-six to forty-eight hours.

The actions of the other natural mydriatic alkaloids—daturine, duboisine, and scopolamine—are almost identical, and closely resemble that of atropine. They are two or two and a half times as strong as atropine, so that used in solution of one-half or two fifths the strength they produce an equal effect. Recovery from their effects does not require so long as recovery from the effects of atropine. After complete dilatation by one of these drugs the pupil will return to normal in eight or ten days. They also cause complete paralysis of accommodation.

The artificial alkaloid homatropine differs essentially from any of the above in being much weaker in action, and in having a shorter period of recovery. A solution of 1 to 50 is required to produce complete dilatation and fixity of the pupil, and a single instillation of this does not produce complete paralysis of accommodation. Recovery is generally complete in two or three days. He has seen it complete in twenty-four hours, but in one reported case the period of its influence lasted longer than five days. Euphthalmine, an artificial alkaloid recently brought forward, is weaker than homatropine, and gives slightly greater dilatation of the pupils as compared with the diminution of accommodation that it produces. One instillation of a solution of 1 to 20 produces almost maximum dilatation, but not fixity of the pupil, and recovery is complete in about twenty-four hours.

In contrast with all the above is the action of cocaine; it never produces fixity of the pupil. After repeated instillations of strong solutions the pupil continues to contract on exposure to strong light, and with convergence, yet even a single instillation of a solution of moderate strength will cause with feeble illumination a wider dilatation of the pupil than can be obtained by any application of atropine, or the stronger mydriatics. Dilatation produced by cocaine passes away in about twelve hours, and its effect on the accommodation is very slight. The superiority of cocaine is most marked in elderly persons, in whom the other mydri-

atics produce only imperfect dilatation of the pupil. The influence of cocaine is well shown by its effect in enlarging the pupil, when fully dilated by one of the stronger mydriatics.

Bearing in mind the special characteristics of the different mydriatics, the author would have us consider which will best meet the needs of each particular condition, in which the use of a mydriatic is indicated. To dilate the pupil for ophthalmoscopic examination the indication is to dilate it quickly and widely in the dark room for as short a time as possible, and to cause the least inconvenience and impairment of vision afterward. This is particularly the case when there is reason to suspect some progressive lesion causing the impairment of central vision, as albuminuric retinitis, or retrobulbar neuritis with central scotoma. It has repeatedly happened that a patient suffering from one of these diseases has been met in whom for purposes of examination the pupil has been dilated by one of the slower mydriatics. The mydriatic caused immediate impairment of vision, and by the time the mydriatic influence had imperceptibly passed away the original disease had caused an impairment of vision which replaced that produced by the drug. It has usually been impossible to convince such a patient that his eyes have not been permanently damaged by the drops that were put in them. On the other hand, a mydriatic like cocaine, or a mixture of cocaine and homatropine, causes comparatively little interference with vision at any time, and its effect passes off so rapidly that the patient realizes that he has recovered from it before the more permanent loss of vision by disease has progressed so far as to be noticeable.

CYSTITIS IN WOMEN.

SHOBER contributes a paper bearing upon this topic to the *Journal of Medicine and Science* for August, 1899. He thinks that the treatment of these various conditions is quite simple and satisfactory if properly understood. The advice usually laid down in the books is misleading and not sufficiently positive. Dr. Shober says he wishes to emphasize very positively the opinion that some form of local treatment is indicated in almost all cases of cystitis occurring in women. Of course, the old maxim to avoid local treatment in the first stages of an acute cystitis is to be considered, but even in these cases Dr. Shober holds that if the symptoms do not yield to the usual constitutional measures in a very few days, one should not hesitate to begin local treatment.

Much benefit and great relief will result from a careful lavage of the bladder with any one of the mild cleansing solutions. The washing should be done under strict antiseptic precautions, care being taken not to overdistend the bladder. A very simple apparatus for the purpose is used by him. A pint jar with an opening at the bottom, having a rubber tube attached and a two-way catheter at the end of the tube, is filled with the desired solution. This may be a decinormal salt solution, or a solution of boracic acid one drachm to one pint of water, or in cases of gonorrheal cystitis, a solution of nitrate of silver one-half to one or two grains to the ounce. After the urine has been carefully drawn, a small amount of the solution, one to four ounces, is allowed to flow into the bladder. This is drawn off or allowed to flow off, and the process is repeated until the water comes away clear. In this manner an enormous amount of débris, shreds of mucus, and exfoliated epithelium can be washed out of the bladder. This proceeding, depending upon the severity of the case, can be carried out from one to three times a day. The patient should be confined absolutely to bed; the diet should be of the blandest kind (if possible a milk diet should be insisted upon), and large quantities of diluent drinks should be prescribed. Other measures, depending upon the cause, may be necessary, but as a rule the above treatment will be found efficient in most cases of acute cystitis.

The majority of cases of cystitis in women are of the subacute or chronic varieties. Depending as they do upon such a variety of causes, these cases require many forms of local treatment. By local treatment in this connection Dr. Shober says he does not mean direct application to the bladder walls, but treatment directed towards correcting the cause which has produced the cystitis. Uterine deviations and misplacements must be corrected, diseases of the ovaries and tubes and pelvic adhesions must be overcome, lacerations must be repaired, calculi removed, etc.

In addition to lavage of the bladder, we have another method of local treatment. This is the treatment by direct applications to the bladder walls through the endoscope. It is especially valuable in those

cases where the disease is localized in one or more spots or areas in the bladder. The patient being placed in the knee-chest or in an elevated dorsal position, the endoscope is introduced, and the bladder, having previously been emptied, fills at once with air. Its entire surface can then be carefully inspected through the endoscope by means of the headlight. Spots of local inflammation can thus be treated by applications of much stronger solutions than can be used as a wash. Often one or two applications are sufficient for the cure of cases which have long resisted all other forms of treatment. The most satisfactory solutions for most cases, especially of gonorrhea, tuberculosis, and so-called solitary ulcer of the bladder, are the solutions of nitrate of silver from five to twenty grains to the ounce. Occasionally much stronger solutions may be used, if applied with skill and the greatest care.

As a last resort in those cases of cystitis which do not yield to the measures indicated above, we are justified in establishing a vesicovaginal fistula, to furnish an opening for the continuous flow of urine, and to put the bladder at rest.

The patient is allowed to be about, wearing a large pad of some absorbent material to take up the urine. The pad should be constantly changed and the parts kept scrupulously clean. This is best accomplished by frequent washing and the use of thick zinc ointment. At the end of a few months the mucous membrane of the bladder is restored to a healthy condition, and the fistula may be closed.

THE CHOICE BETWEEN THE CÆSARIAN OPERATION AND ACCOUCHEMENT FORCÉ AFTER THE MOTHER'S DEATH.

The *New York Medical Journal* of August 5, 1899, speaking editorially of this matter, tells us that it is just possible that the advances that have been made in recent years in the technique of the Cæsarian operation, whereby it has almost been robbed of its fatality, have led to such a degree of readiness to resort to it in the case of the living woman, and a consequent utter lack of hesitation to perform it on the dead, as may prove disastrous under certain circumstances unless special precautions are taken. The danger was lately set forth somewhat graphically by Dr. Colle, at a meeting of the Société Centrale de Médecine du Nord (*Écho Médical du Nord*, June 25, 1899). Within a week of her expected confinement a woman fell dead, in his presence, with symptoms of pulmonary embolism. He went home hastily to obtain the instruments necessary for the Cæsarian operation. It was fifteen or sixteen minutes before he got back to the dead woman. Then he rapidly incised the abdominal wall and that of the uterus, tore open the fetal envelopes, and was fortunate enough to extract a child which, although cyanotic, soon began to breathe and was saved.

But an ugly rumor began its rounds; it was whispered that the doctor had killed the mother. This set M. Colle to thinking, and his reflections were not pleasant. He asked himself what material proof he should be able to offer that the woman had been actually dead at the time of the operation, in case he was accused; and prosecutions of physicians were so easily set on foot! At the meeting he mentioned these reflections and cited instances of women supposed to be dead who had regained consciousness during the Cæsarian operation. He was inclined, therefore, to prefer accouchement forcé in cases of the supposed death of the mother, for it could be performed at once, and the woman, if not really dead, be saved as well as the child, while the accoucheur's reputation was safe also.

M. Oui agreed with M. Colle that, after the mother's death, accouchement forcé was to be preferred to the Cæsarian operation, at least in private practice, for in the cutting operation the same precautions should be observed as if the mother were living, and that might really be the case. He cited Tarnier as having called attention to the very important consideration that it was always necessary to lose more or less time in obtaining the consent of the family to the performance of hysterotomy, whereas one could proceed at once to extraction *per vias naturales* and incur no reproach. M. Oui would use the forceps if he happened to have the instrument with him; otherwise there was but one resource — podalic version.

Perhaps the obstetrician of the present day may fairly be expected to go to a case of confinement prepared to perform the Cæsarian operation at short notice and with all the attention to detail that it requires, but certainly it cannot be required of him that he should be thus ready in the case of a woman who, being in apparent health, falls dead in his presence while he is making an

ordinary professional call on another member of the household, and is then ascertained to have been pregnant with a viable child—and this was M. Colle's experience. But the physician always has his hands with him, and can proceed instantly to dilate the cervix, rupture the membranes, turn by the feet, and extract — and that, too, without asking anybody's permission.

COTTONSEED OIL AS FOOD.

The Lancet of July 29, 1899, editorially considers this somewhat important subject in the following language:

"Because cottonseed oil has been employed by unscrupulous persons as an adulterant of olive oil and butter a certain amount of prejudice has been entertained against it as an element in dietetics. The ease, however, with which cottonseed oil saponifies would indicate it to be a useful food and an excellent substitute for more familiar fats. Indeed, there is some evidence in favor of the view that properly refined cottonseed oil is as wholesome as butter. However wholesome and nutritious, though, cottonseed oil may be, it should be sold under its right name and should not be allowed to masquerade under titles to which it has not the slightest claim. The late Dr. Campbell Morfit devoted considerable attention to the purity of cottonseed oil for edible and pharmaceutical purposes. Some important observations connected with his researches in this direction have recently been communicated to us in a paper by his daughter. In this paper it is stated that the exceptional capacity for assimilation which cottonseed oil possesses when chemically pure can be demonstrated by five years' experience of its use in severe chronic dyspepsia. Where the diet was strictly limited and the stomach was intolerant of any other fat, even of butter, the daily consumption of a small quantity of cottonseed oil produced results unattainable, it is said, from any other food. Further, cottonseed oil is much less nauseating than cod-liver oil, while it is free from laxative tendencies, so that it may be exhibited, as in the case of tuberculous patients, where excessive waste has to be combated without overtaxing the digestive functions. It has been suggested as a suitable food for growing children and as a lubricant in massage treatment. It would appear, however, that cottonseed oil which has been refined by drastic bleaching agents loses many of its useful qualities. On the other hand, by employing such refining agents as will act upon the impurities solely, leaving the oil itself chemically untouched, a bright golden oil is obtained possessing a sweet, nutty flavor and evincing no liability to become rancid. Such an oil is well adapted for edible and culinary purposes, and since the output of the oil in many parts of the world is enormous, it is surprising that the claims of cottonseed oil as food have not previously been more widely made known."

SOME REMARKS ON THE PATHOLOGY AND TREATMENT OF GOUT.

Dr. SYDNEY A. BONTOR, in an article bearing this heading published in *Treatment* of July 13, 1899, expresses the belief that the medicinal agents chiefly relied upon in the treatment of gout are colchicum, the salicylates, guaiacum, and the alkalies, with which piperazin, lysidine, and lithia may be included. There is no doubt that colchicum, although introduced into the treatment of gout by quacks, is of great value in relieving the pain of the acute attacks, but until recently no satisfactory explanation of its action had been found. Luff, however, has brought forward the suggestion that, by acting as a cholagogue, it prevents the glycocine from passing untransformed into the blood, and so acts directly as a preventive in the formation of uric acid; and in support of this he showed that administration of colchicum produced a diminution in the excretion of uric acid. Moreover, as its use is found by many to be beneficial in chronic as well as acute cases, this explanation seems a very reasonable interpretation of its mode of action.

The depressant action of colchicum upon the organs of circulation renders it necessary to observe a good deal of caution in asthenic cases.

Alkalies, especially salts of sodium, also have been almost universally used in the treatment of gout, especially in the acute attacks, because it was, and by some is still, supposed that the deposit of uric acid is dependent upon a diminished alkalinity of the blood. All writers who have especially studied the reaction of the blood — *e. g.*, Rumpf (*Centralb. f. Klin. Med.*, 1891) and Frendberg (*Virchow's Archiv*, Bd. 125) — have shown that its alkalinity is subject to very little variation, that mineral acids do not in the least affect it, and that organic acids in fairly large doses (acid. lact. ʒ iij to ʒ vj, or

acid. tart. ʒ j to ʒ ij, daily) reduce it only by about one-sixth, and produce no further reduction; while Jacquet (*Archiv f. Exp. Path. u. Pharm.*, 1892) was able to detect only a very slight diminution of alkalinity, even after the injection of acids into the veins of living animals. Notwithstanding this, the opinion is held by many that in gout there is a reduction of alkalinity, and that this increased acidity is the cause of the gouty deposit. Klemperer (*Deutsche Med. Woch.*, xxi, 1895) and Luff (Path. and Treat. of Gout, 1898) have shown that even in gout the reduction of alkalinity is very slight, and that in healthy individuals as great a reduction may also occur; while recent observations show that a greater reduction than takes place in gout occurs in such diseases as diabetes, acute rheumatism, etc., without any deposit of urate of sodium taking place. Moreover, Luff has quite recently demonstrated that the deposit of uric acid from serum does not take place until alkalinity has been reduced by at least fifty per cent by mineral acids, and seventy-five per cent by organic acids; and he points out that in order to produce such a diminution of the alkalinity of the blood it would be necessary to imbibe, all at once, two bottles of old port wine. But this is not sufficient either to indicate the use of port wine in the treatment of gout, or to contraindicate the use of alkalies, since the experiments relate only to uric acid; and we know that the deposit in gout occurs in the form of urate of soda, and not in the form of uric acid, although this point is frequently ignored in the consideration of this question. It is necessary, therefore, before we finally decide as to the suitability of alkalies in preventing the deposit of urate of soda, or dissolving it after it has been deposited, that we should ascertain the effect upon the solubility of this substance itself in serum whose alkalinity has been reduced.

The experiments reported by Sir Alfred Garrod seemed to indicate that some alkalies —the salts of lithia, potassium, and sodium— had some effect in increasing the solubility of biurate of sodium; but this observation was in opposition to that subsequently made by Sir William Roberts, and the recent investigations of Luff, carried out under conditions as nearly as possible representing those which would obtain if alkalies were introduced into the general circulation, support the conclusions formed by Sir W. Roberts, and are entirely opposed to the view of Sir Alfred Garrod. He found that neither potassium, bicarbonate, potassium citrate, lithium carbonate, lithium citrate, sodium phosphate, piperazin, or lysidine, had any effect whatever upon the solubility of sodium biurate in serum, and that sodium bicarbonate actually reduced it to a certain extent. Moreover, by another series of experiments he showed that the conversion of sodium quadriurate into biurate is not at all delayed by an increased alkalinity of the blood; and therefore it may be assumed that the alkalinity of the blood has no effect upon the formation or the solubility of sodium biurate, and, consequently, that alkalies do not prevent the deposit of urate of sodium, nor do they sweep out any accumulation which may have occurred.

The objection to the alkaline treatment of gout was first raised by Sir William Roberts, and in support of his theoretical objection, based upon the experiments already referred to, he stated that "clinical experience on the use of alkalies speaks with doubtful voice;" but although their use does not receive universal approbation, it is nevertheless supported by a great weight of clinical experience, and with this we can fully agree. We have said that alkalies do not exert any influence upon the solubility of the uric acid in gout; but this is very far from saying that they have no value in the treatment of the disease. We have seen that the gouty uric acid formation is primarily due to defective metabolism of nitrogenous materials. Now, we know that some alkalies have a considerable influence upon metabolism and the improvement of the general nutrition, and consequently, by their remedial action upon the gastric and hepatic functions, they are able to bring about these good effects which have been attributed to them for so long; and therefore we may include in our prescription some such salt as citrate of potash or citrate of lithia, not with a view to altering the alkalinity of the blood, but with a view to improving metabolism, and so of diminishing the production of uric acid, and to stimulation of the excretory action of the kidneys, whereby the elimination of the quadriurate may be promoted.

But while this argument applies to those of the alkalies, such as potassium and lithia, which act upon digestion, or have a marked diuretic effect, it does not do so to all—for example, the salts of soda. Sir William Roberts has shown that the solubility of biurate of sodium in water is practically 1 part in 1000, but if any salt of sodium be introduced, the

solubility is greatly reduced, and water containing only 0.7 per cent of sodium salt exerts practically no power of solution; and he points out that all the sodium salts are alike in this respect, and also that the sodium salts present in serum reduce the solubility to 1 in 10,000, while serum from which the salts have been removed exerts the same solubility as simple water.

Luff has confirmed these observations, and therefore we may conclude that the introduction of sodium into the gouty system is to be avoided. Now, common table salt is a compound of sodium, and therefore Sir William Roberts has suggested that it should be excluded from the diet of the gouty; but to remove an article so important for flavoring purposes without providing an efficient substitute would be a serious matter, and he has suggested the use in its place of potassium chloride. In this connection Dr. Bontor says he may again draw attention to Dr. Luff's recently published experiments with the ashes of various vegetables, and his suggestions that a table salt should be prepared from this for use by the gouty in the place of the chloride of sodium now used. In view of the results which he has already mentioned, Dr. Luff suggests that a table salt might be prepared from the ashes of vegetables, and calculates that by the use of suitable vegetables and this table salt it would be quite possible to introduce into the body more than 0.1 per cent of mineral constituents of vegetables. The importance of this is at once apparent if figures are given for the solubility of sodium biurate: Plain water dissolves 1.1 per 1000; 0.1-per-cent solution of common salt dissolves 0.45 per 1000; 0.1-per-cent solution of spinach ash dissolves 1.90 per 1000. The salt solution thus has not half the solvent power of plain water, while the solution of spinach ash has four times the power of solution of common salt, and nearly twice that of water. The ashes of many other vegetables have also this increased power of solution.

Another series of drugs largely used in the treatment are the salicylates, but their use in gout, based upon their success in acute rheumatism, appears to be a mistake. It is true that a great increase in uric acid in the urine succeeds the exhibition of these drugs; but this increase of uric acid appears to be due not, as was originally supposed, to an increased elimination from the system, but to an increased production.

If this be so, then the use of salicylates, instead of being beneficial, would be harmful; and as the following evidence very clearly shows that it is an overproduction, and not an increased elimination, which is caused by salicylates, their use is distinctly opposed to our first object of treatment.

Careful examinations have shown that salicylates produce an increased elimination of uric acid in the urine in healthy subjects, and this increase must be due either to (1) an increased production, or (2) to a solution of gouty deposits. Now, all gouty deposits exist in the form of sodium biurate, but Luff has shown that solutions of salicylate in serum, in far larger quantities than could possibly exist in the blood, have no greater power of dissolving biurate of sodium than the serum itself; while, on the other hand, Bohland found that the administration of salicylates produced an increase of leucocytes. And if Horbaczewski's theory be correct, this would cause a considerable leucolysis, and as a result an increase of uric acid. Further, it is well known that salicylates unite freely with glycocine; and if our theory of the production of uric acid be correct, it is probable that this action of the salicylates is another cause of the increased uric acid excretion, since the glycocine carried to the kidneys by the salicylate unites with the urea to form the uric acid which appears in the urine. This increased production taking place with kidneys already incapable of eliminating their normal amount of uric acid would certainly tend to increase rather than allay the gouty condition.

Of guaiacum much difference of opinion appears to exist. It was originally introduced by Sir Alfred Garrod, and he states that he knows many hundreds of cases in which its use has been especially valuable. He advises its use for those cases where the gouty pains are relieved by warmth; and inasmuch as it is a stimulant to the liver metabolism, it is probable that his opinion of it as a powerful prophylactic is justified, and that guaiacum deserves a more permanent place among the remedies for gout than has hitherto been accorded it.

And, finally, as to the local treatment of gouty joints. During the acute attack, rest, elevation, and warmth are the essentials. The application of cold is most dangerous, on account of the frequency with which retrocedent attacks of vital organs may be induced; whilst the application of uric acid solvents is useless, since the deposit consists of biurate, and not of uric acid. During the

chronic stages hot baths, such as those of Bath and Buxton, will be of service, as also the application of very hot, dry air. These act by increasing the circulation in the vessels surrounding the affected joint, and so not only relieve the tension and pain, but also promote the absorption of the deposit.

ON THE USE AND ABUSE OF NITRATE OF SILVER IN THE TREATMENT OF OPHTHALMIA OF THE NEW-BORN.

HARRY FRIEDENWALD tells us in the *Maryland Medical Journal* of September 30, 1899, that the treatment of ophthalmia neonatorum must be carried out properly—in strict accordance with Crédé's method. A two-per-cent solution is to be used, and a single drop is to be instilled directly upon the cornea as soon as possible after birth. It will not do to either increase or decrease the strength of the solution. Thus Howe's study has shown that a one per-cent solution reduces the percentage of ophthalmia only to 2.4 per cent, or about four times that of the standard solution.

The effect of stronger solutions and their more abundant use may be very disastrous, as is demonstrated by the following case: Last year Dr. Friedenwald was called to see an infant that had been born at 4 A.M. Soon after birth several drops of a three-per-cent solution was instilled, and in the early forenoon an attendant, believing that the treatment had not been used, instilled some more. The eyelids rapidly swelled, and when Dr. Friedenwald saw the child there was a large infiltrated area, embracing the lower half of the cornea and presenting the typical picture of a burn of the cornea. Under simple treatment (boracic acid salve) the inflammation subsided and the cornea cleared up to some extent. This was evidently not a specific ophthalmia; its onset, course, and appearance proved it to be a burn from the nitrate of silver.

In hospital practice no one questions the propriety of applying Crédé's method; in private practice it is rarely used. Is it not almost criminal neglect not to use it when the mother is known to have gonorrhea, or even when this disease is suspected? The conscientious physician who does not apply it in cases of severe leucorrhea, or when the mother has previously borne children that suffered with ophthalmia, will find it difficult to relieve himself in his own mind from blame if the infant he delivers develops ophthalmia.

Now in regard to the curative treatment of ophthalmia of the new-born with nitrate of silver. Here it is equally important to apply the remedy properly, but it is much more difficult, for accurate judgment is required, and hard and fast rules cannot be given. The solution is likewise usually two per cent. In mild cases it may sometimes be reduced to one per cent, and stronger solutions are rarely required. The same effect can be obtained with the two-per-cent solution as with the stronger solutions if it is applied for a longer time.

It is equally important to know when not to use the silver solution. During the first stage of ophthalmia, when the lids are greatly swollen, the conjunctiva is congested and glistening and exuding a thin, straw colored serum, with sometimes a fibrinous deposit covering the conjunctiva; during this stage, as von Graefe showed, the nitrate of silver acts harmfully. If applied at all freely the conjunctiva becomes covered with a dense membrane which cannot be removed, and which requires a number of days for its disappearance. But what is most serious is that this condition of the conjunctiva is frequently followed by corneal ulceration. It is necessary to curtail this state as much as possible, and this can be done by means of cold applications; cloths which have been left lying on a block of ice are placed upon the eye in rapid succession and continuously, day and night.

As soon as the serous exudate becomes purulent we begin the use of the silver solution. But it is well to apply the solution very gently at first, brushing it over the conjunctiva but once or twice, for if applied vigorously even now the false membrane may make its appearance. The solution is not to be dropped into the conjunctival sac as is frequently done. The lids are to be thoroughly everted and the solution penciled over the entire surface. Many surgeons neutralize the excess of the nitrate of silver solution with a little salt water. Dr. Friedenwald has been in the habit of taking up most of the excess with a bit of absorbent cotton, and he believes the small quantity remaining is rather a benefit than a source of injury to that part of the conjunctiva which cannot be reached directly.

During the first few days, while there is still much swelling of the lids, it is necessary to continue the cold applications. It is most

important to keep the eyes free from collections of pus by frequently separating the lids and washing out the eye with some mild solution, such as boracic acid solution.

The nitrate of silver is to be used once daily, and after the first application or two it is to be penciled over the conjunctiva until a thin milky layer is everywhere apparent; and it is well to follow this application with the cold cloths for half an hour or an hour to prevent too great reaction. This treatment is to be continued until the case is cured.

In that class of cases usually neglected in which a chronic ophthalmia is found, and in which the conjunctiva presents enormously enlarged papillæ resembling the cock's comb —in these we are sometimes obliged to use stronger solutions, three or even four per cent, but with great care and careful protection of the cornea.

CHLORETONE: A NEW HYPNOTIC AND ANESTHETIC.

HOUGHTON and ALDRICH, who are doing such good pharmacological work, have contributed to the *Journal of the American Medical Association* of September 23, 1899, a statement concerning the use of this new and valuable drug. They tell us that during the past few months chloretone has been quite extensively employed clinically. From their experience and that of numerous other observers they briefly outline its therapeutic properties as follows:

In cases of lacerated wounds, burns, etc., it is very efficacious in lessening pain when the injured parts are freely bathed in aqueous solutions of the drug. Owing to its antiseptic properties, it may be used independently as a surgical disinfectant, or if a strong antiseptic action is desired it can be employed in conjunction with mercuric chloride, carbolic acid, etc. Pain and uncontrollable vomiting of gastric origin may frequently be relieved by its internal administration. In one instance the drug proved especially useful in checking the persistent vomiting of gastric carcinoma. It may be possible that the drug will prove to be a useful therapeutic agent in preventing or controlling seasickness, vomiting of pregnancy, etc. Laboratory experiments quite conclusively show that it renders the mucous membrane of the alimentary canal insensible to irritants. Mustard, when given in an aqueous solution of chloretone to dogs, fails to provoke emesis, the animal usually going quietly to sleep. That the mustard produces the usual amount of irritation is shown by the fact that if on the following day the animal is killed and the intestine examined, its walls are found much inflamed, the parts coming in contact with the mustard in some instances being nearly vesicated.

As a hypnotic, chloretone is frequently efficacious in various conditions. Especially good results have been obtained from the exhibition of the drug in cases of persistent insomnia in the aged, and in cardiac disease with renal complications accompanied by high arterial tension. In many instances where morphine, chloral, trional, etc., have been unsatisfactory, chloretone has been successful. Morphine, as is well known, increases the excitability of the nervous system when administered in large doses, and is frequently objectionable on this account. Chloral is quite irritating to the stomach and depresses the heart's action. Chloretone does not possess any of these disadvantages, being only rarely followed by disagreeable after-effects. Occasionally, when large hypnotic doses have been given, drowsiness occurs on the following day.

In general the authors summarize their claims for this drug by stating that its action on the central nervous system is similar to the anesthetics and hypnotics of the fatty acid series without depressing the centers of the medulla; locally, it acts like cocaine, as a peripheral anesthetic.

It is too early to prophesy what position chloretone will take in medicine, but the results as a hypnotic and local anesthetic are very encouraging. As high as sixty grains has been given at one time without producing any untoward symptoms. From six to twenty grains given in tablets at a single dose, followed by a drink of water or milk, seems to be quite sufficient to produce the desired results. Possibly the drug will prove to be a useful general anesthetic when administered in large doses; or it may be given before chloroform or ether, and allow complete anesthesia to be produced by the use of a minimum amount of chloroform or ether. Perhaps such administration may prevent the annoying vomiting that so frequently occurs when a patient is being anesthetized.

DANGERS OF HEADACHE POWDERS, WITH TESTS FOR THE SUSPECTED INGREDIENTS.

The *Medical Record* of September 30, 1899, contains an article by SOBEL upon this prac-

tical subject. He reports a case of poisoning and points out that its history presents a clear case of poisoning by headache powders, with the following symptoms: Marked cyanosis, prostration, cardiac weakness with irregular heart action, coldness of the extremities, dilated pupils, anxious facial appearance, but complete consciousness.

The next question was, what is the particular offending ingredient? Two drugs only occurred to Dr. Sobel's mind, viz., acetanilid and antipyrin. Phenacetine, on account of its expense, did not enter into the consideration. However, to surmise is one thing, to know another; accordingly he took samples of the powder to the Good Samaritan Dispensary, where, with Mr. F. C. Schumacher, he made the following tests: Each powder weighed ten grains, was of a brownish-white color, presented a shining appearance when rubbed on the fingers, and had a sharp, pungent, bitter taste. The appearance and taste were suggestive of acetanilid. When added to water the solution became flocculent, showing the presence of some insoluble substance, perhaps acetanilid, certainly not antipyrin, which is very soluble in water.

Tests for antipyrin: (1) To three grains of the powder ten cubic centimeters of water was added, and then five drops of tinctura ferri chloridi; the solution became slightly colored. In the presence of antipyrin the solution would have turned a bright red. (2) To three grains of the powder ten cubic centimeters of water was added, and then two cubic centimers of pure spiritus ætheris nitrosi; the solution remained clear. In the presence of antipyrin the solution would have turned dark green, owing to the formation of isonitroso antipyrin. In making this test he emphasizes the use of pure nitrous ether, because otherwise even in the presence of antipyrin the test will fail. This test then is of double value, first in testing the presence of antipyrin, and secondly, the purity of the nitre.

Antipyrin having been excluded, acetanilid was tested for as follows: (1) Two grains of the powder was heated with one cubic centimeter of a concentrated solution of NaOH and three drops of chloroform added; an offensive, poisonous odor of phenylisocyanid (C_6H_5NC) was given off. This is the isonitril test and reacts to acetanilid. On the addition of bromine water the mixture became yellow-red, thus corroborating the presence of acetanilid. (2) Two grains of powder was heated to boiling with two cubic centimeters of hydrochloric acid, and an equal volume of a saturated watery solution of chlorinated lime added; this gave a turbid red or violet fluid, which turned dark blue on supersaturation with NH_4OH in excess. This is the indo-phenol reaction and speaks for acetanilid. (3) To two grains of the powder one cubic centimeter of a sulphuric and chromic acid reagent (chromic acid gr. ⅓, 10 Cc. of water, gr. xxx of concentrated sulphuric acid) was added; this gave an intense red color, which immediately turned blue and then faded. This test responds accurately to acetanilid.

Phenacetine was excluded by Mr. Schumacher with the zinc powder and tincture of chloride of iron test.

Thus, whatever other ingredients these powders might have contained, Dr. Sobel felt convinced that acetanilid was the disturbing factor and gave rise to the symptoms enumerated. It might be argued that in this instance the prostration and other symptoms were due to an overdose of the powders, and that had the original directions been followed nothing unusual would have occurred. It is, however, this very self-medication, this treatment without regard to idiosyncrasy or the underlying conditions, that is objected to.

All pharmacists under the existing laws have a perfect right to sell headache powders, proprietary or otherwise. It is highly advisable, however, that they prepare their own powders, know exactly how much of each ingredient they contain, and fortify them (if necessary) with cardiac stimulants such as caffeine, sparteine, monobromate of camphor, etc. No more than three grains of acetanilid should be dispensed in any one powder.

The indiscriminate self-administration of headache remedies composed of powerful aniline synthetics cannot, however, but work infinite harm, unless the public be warned against the great danger which lurks in this method of medication.

THE PNEUMONIA QUESTION.

Under this attractive heading WELLS discusses this important question in the *Journal of the American Medical Association* of August 19, 1899. He believes that in pneumonia the treatment should resolve itself into reasonable prophylaxis; in making the patient comfortable; in preventing excessive formation of toxins, in neutralizing them, in encouraging

their elimination and increasing the resisting powers of the system against their action; in preventing, or managing properly, the complications which may arise. Dr. Wells regrets that space will allow him to consider, cursorily, only a few of the many interesting and important questions here presented.

Bleeding in pneumonia has been discussed for so many generations and from points of view so diverse that he approaches the subject with reluctance, and it is only because he believes it a remedial resource which has no efficient substitute that he desires it to be considered at this time. It is not desirable that the former routine treatment of pneumonia by excessive bleedings should ever be restored to professional favor, yet Dr. Wells says he is sure that the physician who wholly abstains from venesection deprives his patient of a most potent remedy.

Venesection is not necessary in every case of pneumonia, and the patient, time, and conditions should be carefully selected. The very young and the very old, the weak and the anemic, should not, as a rule, be bled; nor those in whom evidence of obstruction of the pulmonary circulation, or of increasing toxemia, is not marked, but in others in whom these conditions exist the lancet should not be spared.

With an obstructed pulmonary circulation, there is a damming back of the blood into the right cavities of the heart and general venous system. The pulse is not rapid and has considerable tension; the breathing is oppressed, accelerated, and laborious; the patient is alarmed, and his anxiety is depicted in his countenance. This condition is usually met with only early and in plethoric and robust patients. In Dr. Wells's experience the relief afforded in such cases has been immediate and remarkable. Should the patient have passed into a dull or comatose condition with the first brunt of the attack, imminent danger is clearly present. Here successful treatment depends upon ridding the system as speedily as possible of the poisonous matters circulating in the blood and overwhelming the central nervous system, and free bleeding is the remedy *par excellence.*

In another and much larger class of cases the patient successfully withstands the first onslaught of the disease, but after a few days shows the indubitable signs of a profound toxemia, in a pulse which gradually increases in frequency while it loses in sustained force, in a high temperature, in restlessness and delirium, in sallowness or duskiness of the surface; and these cases demand not only venesection, but a cleansing of the blood as well. If blood is simply abstracted from the general circulation, the serum is quickly replaced by the absorption of fluids from the soft tissues. At this stage of the disease, however, these fluids are loaded with toxins and leucomaines, and bleeding alone may fail in its object as a blood-purifier. But if in addition to venesection there is introduced into the circulation a bland and non-toxic fluid, equivalent in quantity to that withdrawn, we not only remove a great and oppressive quantity of offending material, but we dilute that which remains behind.

The method of procedure is of importance. Dr. Wells's own practice is as follows: Venesection, to the extent of removing from four to sixteen or twenty ounces of blood, is done. If the symptoms of intoxication are profound, or if it is clearly evident that the patient will, and does, bear well the loss of blood, the bleeding should be a free one. If, on the contrary, opposite conditions prevail, the amount of blood withdrawn should be small. Indeed, in some of these cases, with profuse perspiration, free excretion of urine, or perhaps diarrhea, bleeding may be omitted.

Simultaneously with the venesection, or immediately before or after, a solution, in distilled water, of chloride of sodium .7 per cent, chloride of potassium .23 per cent, and chloride of calcium .03 per cent, is injected, subcutaneously, in quantity approximating that of the blood withdrawn. Often four or six ounces may be injected later, and repeated at intervals, according to the effects produced. The injections are multiple and are made with a large-bore needle, preferably by gravity, into the subcutaneous tissues of the chest. The fluid is warmed, and ordinary precautions are taken. In some cases high enemata of the saline solution may be substituted for the subcutaneous injections, and, when well borne and retained, with equally good results.

If this method is followed as detailed it is quite free from danger. Dr. Wells has employed it in a number of cases and has seen absolutely no undesirable results — no chill, no rapid rise nor profound fall of temperature, no restlessness nor excitement, no collapse. On the contrary, there has usually followed a gentle or profuse, but warm, perspiration, a free action of the kidneys, a clearing of the intellect and an abatement of cerebral excitement, a lessening of dyspnea, and an improvement of the circulation.

Such has been Dr. Wells's experience when these measures have been resorted to in the early stages of the late toxemia; but if they have been delayed until evidences of approaching death were manifest, the effects have been negative. In the one case the results of treatment have been satisfactory, and a fair proportion of patients have recovered; in the other they have, with this as under every other plan of management with which he is acquainted, uniformly died.

From first to last in pneumonia the vasomotor system, as reflected in the state of the capillaries, must be given assiduous attention. Failure in this direction, with capillary paresis, should be anticipated and met with efficient doses of digitalis and strychnine, and an occasional carefully gauged dose of morphine.

In conclusion Dr. Wells says that in spite of the fact that the ordinary management of this affection in times past—recent as well as remote—has been, on the whole, signally unsatisfactory, and that that in vogue to-day is scarcely a promise of the advances of to-morrow, he believes that the immediate future will demonstrate pneumonia to be certainly a preventable and largely a curable disease, and that in this field the morning light of the twentieth century will see every reasonable hope of medical optimism abundantly realized.

THE TREATMENT OF PLEURITIC EFFUSION IN CHILDHOOD.

The *British Medical Journal* of August 19, 1899, contains a paper by MAGUIRE upon this subject, in the course of which he says that having determined that an effusion is serous and not purulent, we must deal with the question of how it must be treated in a child. Positive tension in the thorax is a very important guide, though, as Dr. Maguire states, it rarely occurs in children provided that the effusion is simply serous. It is detected and estimated by bulging of the intercostal spaces and by depression of the diaphragm and its underlying viscera. But displacement of the heart is no evidence of its presence. The heart can be displaced by even a small pleural effusion, and we must not be misled by this, nor deceived into thinking that because, as it is still often expressed, "the heart is pushed to the opposite side," there must be immediate operative interference. The heart is scarcely ever "pushed;" it is simply drawn by the retraction of the opposite lung and of the mediastinum.

But depression of the liver, stomach, and spleen is a different matter; and further, such depression is generally accompanied, even in children, by engorgement of the cervical veins and great dyspnea. Then, undoubtedly, aspiration is the best treatment, and must be pursued, whether the fluid withdrawn be blood-stained or not. Dr. Maguire says that in the preliminary puncture the aspirator, and not the ordinary needle, should be used. If there be no such signs of positive tension as he has described, and the fluid withdrawn is deeply blood-stained, he thinks it is better to stop the aspiration at once. To pursue it would only draw more blood to the inflamed lung, which probably underlies the effusion. Suppose that the effusion be only moderate in amount, that there be no signs of positive tension, and that the fluid be not unduly blood-stained—the usual conditions under which such effusions are met with—here, again, he says that aspiration is best not proceeded with. For once purely medical measures are the best. Dr. Maguire is no advocate for any attempts to draw off the fluid by artificial channels—as, for instance, the kidneys—say by the aid of diuretics. There is no need for any such course. Moreover, the resistance of the child's lung is so great that, even after a long collapse, it will expand normally, thus differing from the lung of the adult. But this depends greatly upon the maintenance of the general health.

Fortunately, in children tuberculosis is rarely the cause of pleuritic serous effusion. Sir William Jenner stated that it was the frequent cause of empyema, and recently Netter has denied this on the ground of bacteriological examination. But Netter has also trusted simply to microscopic examination, and has not applied the test of inoculation to the fluid obtained from his cases; therefore his results are by no means reliable, and in the case of purulent effusions Sir William Jenner's dictum must be considered unshaken, supported as it must be by the clinical experience of all. This, however, refers only to purulent effusions. With regard to serous effusions, one may safely hold the opinion that tuberculosis is rarely present in such cases as they occur in children. Yet there occur cases of serous pleuritic effusions in which there is undoubted evidence of the presence of tubercle in the lungs, and in such cases he strongly advises non-interference with the effusion. The

same rule applies to adults also, and he hesitates to give a conjecture as to its rationale; he says he will merely state what has been supposed. It has been thought that the relief of the lung from the presence of the effusion may lead to increased circulation through the lung, and therefore to increased activity of tuberculous inflammation. This seems a very improbable view for many reasons, which need not be discussed here. Another idea is that in the effusion from a tuberculous lung there may be an antitoxin, the result of the cultivation of the bacillus on human soil, and that the gradual absorption of such antitoxin prevents the further development of the tuberculous process. For this view we have no proof, but the theory seems well worthy of further investigation. Let us at present be content with the fact, of which Dr. Maguire says he is well satisfied, that it is better to leave tuberculous effusions alone, provided that they do not produce signs of positive tension amounting to pressure, which would endanger the functions of the other thoracic viscera.

Next we must think of the treatment of such simple inflammatory but non-tuberculous effusions as we have determined to not warrant aspiration. To maintain the general good health by good feeding and hygiene is the great point, but the disappearance of the fluid may be hastened by the administration of gray powder. This is exceedingly old-fashioned treatment, and was much cried down by Sir William Jenner. Nevertheless, Dr. Maguire is of the opinion that our forefathers were right in its use, though possibly they carried it to excess. Judiciously employed, he has seen it act powerfully as a remedial agent, and with no bad effects. He sees no reason to insist upon absolute rest for the young patient who has a pleuritic effusion, provided that the inflammatory process has subsided, and that there be no signs of positive tension in the thorax. Judicious open-air exercise is sometimes of great use in removing such effusions, and probably acts by increasing the general nutrition. Naturally the same advice cannot be given to adults, for in them there is a greater risk of heart failure.

So far Dr. Maguire has only mentioned simple serous effusions. But if our initial puncture—or aspiration, as he recommends—should show the presence of pus, what, then, should be our procedure? He would advise that in the first place we should try to find the source of the infective material, and still further to take warning from the presence of the pus to prevent its formation in other cases. He says he wishes here to give a special word of warning. On no account would he decry the operation for the removal of adenoid growths of the nasopharynx. There can be no doubt in the minds of any of us as to the need of such operation at times for the mental as well as physical well-being of the patient. In regard to the operation, he finds fault with the surgeons mainly, and almost wholly, because they are not sufficiently thorough in their removal of such growths, and fail to clear the parts of the pharynx which lie near the base of the skull, and which therefore interfere with mental development. But more judgment is required in choosing the time for such operation, and more precautions are necessary to insure asepsis. There can scarcely be conceived a surface more capable of septic infection than the newly scraped lymphatic tissue left after such an operation. Recently Dr. Maguire was called in to see a case where he prevented such an operation, proposed to be performed actually at the time when the patient was suffering from suppurative inflammation of the middle ear. How could the young patient under such circumstances fail to develop a highly septic wound? He says he mentions the matter here because empyema sometimes occurs as one of the septic manifestations—and by no means the most serious of them—caused by this operation.

Cases will arise at times in which the ordinary and best operation for empyema—incision—cannot be performed. For instance, the patient's friends may object to operation; and again, empyema may present itself on both sides of the chest, and it is almost impossible to open both sides and disable both lungs. What are then the dangers which may attend leaving the empyema alone, and also those which may result from treating the empyema by repeated aspiration? There is no doubt that empyema will sometimes, but rarely, get well by resorption and with no accidents. In the child, too, perforation of the abscess into the lung is not common, and perforation through the chest wall is still rarer. The great danger, then, is that of septic infection, causing acute inflammation elsewhere, or gradual interference with the body health, and marasmus, with death from asthenia. Some of these dangers, however, can be avoided by repeated aspiration, and the patient thereby restored to health. As an in-

stance of this Dr. Maguire mentions two cases: one was a child whom he saw in consultation with Dr. Reid, of Lambeth. The parents objected to operation, so Dr. Reid aspirated three times, drawing off about thirty ounces of pus on each occasion, and the child quite recovered. Again, he has a child under his care at the Brompton Hospital in whom he diagnosed empyema, and asked Mr. Godlee to operate, but before he could do so an empyema developed on the opposite side. One empyema was incised, the other being treated by aspiration, and the child is doing well.

Two other conditions of pleural effusion Dr. Maguire mentions briefly to complete the materials for discussion from the medical standpoint; these are effusion, generally purulent, encysted between the lobes of the lung, and effusion, purulent or serous, as it accompanies pneumothorax.

Effusion between the lobes of the lung is more common on the right side, because here there are three lobes instead of two, and its diagnosis, by no means an easy matter, is of great importance for treatment. Such an effusion shows itself mostly by mere simple pleuritic signs limited to a spot near one of the interlobar fissures, and with only very obscure signs of fluid effusion. Exploratory puncture is very uncertain in its results, for, as he has not infrequently seen, there is only one limited area through which the needle can reach the fluid. Yet it is always desirable to get at the fluid, whether serous or purulent, before it bursts into either the general pleural cavity or a bronchus. The knowledge that such a condition may be present, coupled with the finding of the limited pleurisy described, and possibly the absence of pneumonic signs, will often lead to its detection. In such cases there is rarely any displacement of the heart, for the locality of the effusion tends to prevent it interfering with the dynamics of the chest. Diagnosis here is everything, for treatment must be pursued according to the usual rules.

Finally, Dr. Maguire mentions the effusion which accompanies pneumothorax. Commonly this is purulent, but sometimes serous. He says he will not go further into the question of its mechanism than to refer to a very curious thing. By reason of the generally prevailing negative tension in the thorax, pleural effusions are usually removed from the influence of the force of gravity. So far as he knows, this is the only instance in nature where such a thing occurs, but when air obtains access to the pleural cavity matters are very different. An ordinary effusion does not obey hydrostatic laws when the position of the patient is changed. An effusion with pneumothorax behaves just as any other fluid would do, and this no matter what the character of the effusion may be, though naturally the thinner the effusion the more mobile it will be.

Dr. Maguire says he cannot too strongly impress the importance of thinking over and understanding these curious conditions of dynamics as they exist in the thorax. Such a consideration led to the invention of the aspirator by a physician, and physicians may reasonably expect to be allowed to use that instrument.

Dr. Maguire says that pus is best removed from the thorax. But he makes a little exception in the case of a small effusion of pus, and *a fortiori* one of serum, accompanying pneumothorax. Pneumothorax with or without effusion may well be left alone if its tension is not very high. Pus in the body is bad, but in the condition to which he refers he thinks the operation for its removal is worse. Pneumothorax is not a common condition in children, and he imagines none of us can report many cases from personal experience. But in adults he had an exceptional experience recently, for five cases of pneumothorax were at the same time present in his male gallery at the Brompton Hospital, and all with more or less effusion. As regards the effusion and the pneumothorax, all the cases were due to tuberculosis, yet four of the patients became quite well for all practical purposes, while one, having recovered from his pneumothorax, is now dying from coexistent tuberculosis. Not one of these patients was treated surgically.

INTESTINAL ANTISEPTICS.

BURNEY YEO, in the *Medical Press and Circular* of August 30, 1899, in considering this theme, points out that intestinal antiseptics and evacuants have for a long time been in use without the rationale for their use being known. The old blue pill, together with the black draught which dissipated the "spleen" and the "vapours" for our forefathers, are instances to the point. Dr. Yeo considers the subject under four headings: (1) What is the scope of antiseptics? (2) What is the scientific basis for their use? (3) Under what conditions are they applicable? (4)

What are the means of applying intestinal antiseptics?

With regard to the first question, the medical use of antiseptics is different from the surgical use. The surgeon nowadays aims rather at asepsis than at antisepsis. But in medicine, as concerned with the intestinal contents, asepsis is impossible. We must if possible prevent, or at any rate antagonize, autointoxication—*i.e.*, intoxication of the organism with the products of digestion.

With regard to the second question, it must be remembered that certain bacilli are only harmful in the presence of putrefaction or other abnormal condition. The bacillus coli, for instance, is a normal inhabitant of the intestine, and under ordinary circumstances is harmless. If, however, the bowel becomes abnormal in any way owing to catarrh, long-continued constipation, or sometimes injury, the bacillus coli seems to take on a virulent action. When associated with the bacillus typhosus it has the power to intensify the virulence of the latter. The experiments of Dieulafoy with the bacillus coli when taken from an appendix, the cavity of which had become shut off from the rest of the bowel, and the same organism when taken from the normal mucous membrane of the bowel, show that the former is virulent, the latter not so. As, then, the virulence of intestinal bacteria depends upon their environment, so by modifying that environment it is reasonable to suppose that we can modify their virulence.

In considering the third question Dr. Yeo says that intestinal antiseptics are indicated in gastric catarrh and fermentative dyspepsia. Grangé recommends in cases of summer diarrhea the use of plain boiled and cooled water. He claims that the use of this dilutes the toxins. There are many other conditions to which fermentative dyspepsia and autointoxication give rise. Such are dyspepsia, chest pain simulating angina pectoris, vertigo, aphasia, and anemia. Even pernicious anemia had been considered by some observers to depend upon some toxin which exerted a hemolytic action. There are three other diseases in which the use of intestinal antiseptics is rational—namely, cholera, dysentery, and typhoid fever. Of the first two Dr. Yeo has had no practical experience, but with regard to typhoid fever he has for some years advocated and practiced the use of intestinal antiseptics. Typhoid fever often exhibits symptoms of being due to a mixed infection, and this may explain the extraordinary variations in the severity of cases. He says he recalls instances in which the use of a chlorine and quinine mixture given every two or three hours has been attended with most marked results for the better in cases of typhoid fever. So, also, in some cases of indefinite febrile affections accompanied by rise of temperature, furred tongue, and foul-smelling stools, the use of thymol by the mouth, together with irrigation of the large bowel by eucalyptol, olive oil, and soap and water administered in the knee-cheet position, had rendered the patients well. Dr. Yeo says he is not able to say to what exact disease this condition was due, but he thinks that whether the original infection had been by typhoid fever or influenza, the condition which he was called upon to treat was due to the action of the bacillus coli in an abnormal environment.

With regard to the fourth question, the various intestinal antiseptics are: water boiled and cooled, calomel and salines, both of great value in the early stages of typhoid fever. Salicylate of bismuth and carbolic acid are both useful. As to the latter, Dr. Yeo says he remembers a case published recently in *The Lancet* by Dr. G. Williams, where a patient suffering from typhoid fever took by mistake one ounce of carbolic acid. He had, of course, to be treated for the toxic effects, but recovered from them with his typhoid fever symptoms much lessened. Salol is very uncertain. Eucalyptol and thymol are both good, and irrigation of the large bowel in such cases as have been mentioned is a necessity. Patients, especially in typhoid fever, must not be overfed.

Dr. Yeo concludes with a warning against the production of the modern manufacturing chemist who sets up to teach the clinical physician.

ETHYL BROMIDE AS AN ANESTHETIC IN MINOR SURGERY.

The *Maryland Medical Journal* of September 2, 1899, contains an article by KEMPTER upon bromide of ethyl. As regards its mode of administration, Dr. Kempter says he follows the plan of Dr. Chisolm. He uses a crash towel, folded in the shape of an air-tight cone, rendering it impervious by a layer of paper, the base of the cone being sufficiently wide to cover both nose and mouth. He pours the full dose required to produce anesthesia into the inhaler, the dose in children ranging from one to two and one-half drachms, and in adults from two to three

drachms. He immediately covers the patient's nose and mouth, having previously instructed the patient to breathe deeply.

Having once applied the inhaler, he holds it down firmly, removing it only from the face when full anesthesia has been induced, which is recognized by the stopping of all struggling on the part of the patient. The patient may feel himself stifled; there need be no fear of causing asphyxia. Children struggle to escape from the inhaler; the cone, however, must not be removed for one instant from the face until full anesthesia has been produced. Should children cry it favors deep inspirations, which will assist in the anesthesia. Some hold their breath, but there is no danger that they will not "catch it" in time.

To the uninitiated it appears that the patient is being asphyxiated, and it impresses them as rather a barbarous procedure to keep the inhaler over a sometimes violently struggling patient. The cone must not be removed, for in no other way can rapid and safe anesthesia be obtained by ethyl bromide.

The time required to induce complete anesthesia depends upon the number and depth of inspirations taken. Generally speaking, one minute will induce deep narcosis.

Nausea or vomiting is of rare occurrence during its administration or at the period of deep anesthesia, which usually lasts about one and one-half minutes, rarely longer than two minutes. In most cases neither heart-beat nor pulse is influenced by ethyl bromide anesthesia.

The increase in pulse frequently is due to anxiety and fear and to the struggling of the patient, but after narcosis sets in it reaches its normal beat. The corneal reflex is present, with primary dilatation of pupil; the healthy color of the lips and skin is usually retained.

The patient awakes suddenly as if from a natural sleep, without loss of coordination and with a perfectly clear brain.

Dyspnea, short respiratory movement, and respiratory pause are unusual complications. Some after-effects, such as headache, somnolence, and amaurosis, have been noted.

Witzel, a German investigator, in 465 cases of ethyl bromide anesthesia mentions the occurrence of profuse perspiration in four cases and strangury in three cases.

The death-rate by the use of ethyl bromide as compared with chloroform and ether is summed up by a series of reports made at the Surgical Congress convening annually at Berlin. These reports cover a period of seven years, from 1890 to 1897, the mortality-rate being summed up as follows: Chloroform, .2023 cases, one death; ether, 5090 cases, one death; ethyl bromide, 5228 cases, one death.

Reich, a German authority, estimates sixteen deaths in 60,000 cases of ethyl bromide anesthesia. These figures are given in Dr. Ernst Hankel's Handbook of Artificial Anesthesia, Leipzig, 1898.

If we do not permit ourselves to be intimidated by the pessimistic accounts that one reads in the average text-book about ethyl bromide, and follow certain practical rules, danger from this form of anesthesia need not be feared.

The adult dose should not exceed three drachms. Owing to its volatile properties and liability to decomposition, the inhaler should be applied immediately and retained to the patient's nose and mouth till full anesthesia has been induced. Under no circumstances should the inhaler be removed for the purpose of prolonging the anesthesia.

A fresh preparation should be used. Exposure to light or air decomposes ethyl bromide and results in the formation of compounds having a more toxic effect than ethyl bromide.

A NEW METHOD OF ANESTHESIA.

J. Geppert, of Bonn (*Deut. Med. Woch.*, 1899, Nos. 27, 28, and 29), describes, with illustrations, an apparatus already successfully used in some 400 cases (in 230 by himself), which automatically delivers air containing a large and known percentage of chloroform into a mask or the open mouth of the patient, a scale in degrees of 0.25 cubic centimeters attached to a tap indicating the exact amount of chloroform delivered per minute. The mixture is concentrated; a small quantity is required, and free respiration is a condition for its use. A gasometer is filled with air; a weighted glass rod suspended from the top of the upper cylinder of the gasometer descends *pari passu* with it, and plunges into a glass tube containing chloroform, the overflow of which passes into a receiver in a bath at 90° to 100° C., and is immediately vaporized. The chloroform vapor is led into the discharge pipe of the gasometer, and the mixture of air and chloroform is led to a convenient spot by fixed gas piping, and thence by a

rubber connection to the operating table. The proportion of chloroform vapor to air (0.4–0.5 : 1 liter) depends on the relative diameters of the cylinder and glass rod, and also upon the chloroform in the tube being pure, or as Geppert employs it (mixed with ether, 2 to 1 by volume, by weight 300 grammes chloroform to 70 grammes ether). Condensation does not then occur above 10° C.

The installation of the surgical clinic at Bonn is large enough for at least six administrations of from one to two hours; the service to the operating-room is fifteen meters, where it ends in three supply taps. It is kept always ready for use. Smaller apparatus have been made, including a portable one for use in the wards. A dose less than 1.2 cubic centimeters per minute causes no unpleasant sensations, but given without preparation that amount is distressing, and 2.2 cubic centimeters is unbearable; with preparation the dose may be gradually increased.

Geppert recommends that for quiet anesthesia, free from danger, the supply of chloroform should be continuous, but only just sufficient for the case; and that it should not be interrupted unless the pulse falls below 60, or is poor in character, or the respiration becomes slow or superficial. The mask employed may be covered with fine wire gauze instead of flannel. Before it is applied the regulating tap is opened to allow the air in the conducting pipes to escape; the tap is then closed, and the mask applied in the usual way, taking care that the stream of chloroform vapor will fall below the nose, so as to mix with the air entering the lungs. Regulation is entirely by the tap, not by withdrawing the mask. A beginning is made by gradually opening the valve, till at the end of about one minute the indicator reaches 1.2 cubic centimeters per minute, when a pause is made for a couple of minutes; the indicator is then turned to 1.45 cubic centimeters, and a pause again made; and so on, the increase being made more gradually as 2.2 cubic centimeters is approached. Women are narcotized generally at 1.70 or 1.95 cubic centimeters, men somewhat later. If narcosis seems at any point nearly established, the supply of chloroform is not increased. It is particularly desirable to use as little as possible, and as much as 2.2 cubic centimeters per minute has seldom been required for women. Men require more; alcoholics have taken as much as 3.70; 4.2 has never been reached, but the longer Geppert has practiced this method the more rarely has he had to use large doses.

When narcosis has been established, the dosage that has been reached must be continued for one or more minutes, particularly if the chloroform is not administered in the operating-room. In any case one commences in the operating-room with the same dose (after flushing the conducting tube). In the first part of the operation the same dose is required, or if there be reaction to the knife, a little more; but after a few minutes it may be gradually reduced to about 1.2 cubic centimeters or somewhat higher in men, somewhat lower in women. With this stage smooth water is reached. The pulse rises above 72, respiration is frequent, the corneal reflex generally present; pupils not dilated and sensible to light. Should the latter dilate or the pulse slow, the tap may be cautiously closed. Should reaction set in it may be opened one or two degrees (0.25 or 0.50 cubic centimeters); in the later stages short intermissions of from fifteen to thirty seconds may be made. It is often necessary, especially in operations on the face and neck, during the narcosis to replace the mask by a knee-tube, the end of which can be passed into the mouth, and such a tube may be used for anesthesia through a tracheal cannula, or in the case of very nervous women who fear the mask. The average amount of chloroform vapor required in the first hour was 30 to 40 cubic centimeters, and for a two-hour operation 40 to 60 cubic centimeters, with half as much ether in each case.—*British Medical Journal*, Aug. 12, 1899.

REPORT OF ONE HUNDRED AND TWELVE CASES OF APPENDICITIS.

MEANS (*Journal of the American Medical Association*, Aug. 5, 1899) reports 112 cases of appendicitis, eighty-two of which were treated by operation and thirty by medicinal measures. Of the eighty-two operated cases, two died—one of acute suppurative peritonitis, which had existed before operation, the other a case of chronic trouble from unknown causes.

Of the operative cases, thirty were acute and fifty-two were chronic or recurrent.

In nine cases the operation was performed within twenty-four hours of the attack; in five of these the appendix was ruptured.

In seventeen cases the operation was performed within forty-eight hours of the

attack; in ten of these the appendix was gangrenous.

Twenty-three cases were operated on within seventy-two hours. In twenty of these cases the appendix was gangrenous in some portion; three cases were instances of catarrhal abscesses, with more or less inflammation of the surrounding tissues.

In twenty-five cases the operation was performed after the third day, and as late as three weeks. There were abscesses in twenty of these; five cases were catarrhal; in nine cases the appendix was not removed, since it was found embedded in granulation tissue, forming the walls of the abscesses. Fecal fistulæ followed in four cases. These closed spontaneously in the course of a few months.

In so far as the author has been able to ascertain, hernia followed in six cases. A mistaken diagnosis was made twice. One of these cases was a cholelithiasis, the other a pyosalpinx.

Of the thirty patients treated medicinally, eight died from septic peritonitis; twelve of the twenty-two who recovered had recurrent attacks. In five of the cases treated medicinally, operation was refused because of the hopeless condition of the patient.

It may be accepted as an established fact, according to Means, that in males peritonitis has its origin almost exclusively in the appendix. Evidence of the existence of the disease may be determined by skilful palpation. This is best made by Edebohl's method.

The patient lies on his back with limbs flexed at the hips. Placing three or four fingers of the right hand flat on the abdomen, we feel for the margin of the right rectus muscle, in the line between the navel and the anterior superior spine of the ilium. The fingers are introduced with a light, steady pressure under the margin of the rectus until we feel distinctly the pulsation of the common iliac artery. The appendix is felt, as a rule, just outside the artery, its insertion about an inch distant, while its tip often crosses the artery. We move the fingers slowly outward as soon as we feel the pulsation of the artery, and note with care the condition of the posterior abdominal wall—that is, the iliopsoas muscle covered with the iliac fascia. This is the point of resistance against which we compress the appendix and which makes it possible to palpate it. When there is much tenderness and rigidity of the museles, it will be almost impossible to feel the appendix; and again, if the appendix extends upward behind the colon, it cannot be discovered. However, with experience a skilful manipulator will be able to determine the outlines of the appendix in a large percentage of cases.

There are other points in the differential diagnosis that might be mentioned. Renal colic is perhaps one of the most difficult conditions from which to differentiate. We should bear in mind, however, that in appendicitis, while the pain is constant it is progressive in its intensity; and in renal colic while the pain is constant the intensity is not increased. In renal colic, when the pain ceases it ceases instantly; in appendicitis it ceases gradually.

Then, again, in a limited number of cases where the appendix is behind the colon, the pain may extend to the testicle, as in renal colic. If other characteristic symptoms of appendicitis are present and the peculiar progressive character of the pain is recognized, it is possible to differentiate from renal colic.

In gall-stone colic there is nausea and vomiting, usually continuing for several days; in fact, the gastric disturbance is characteristic of disease of the gall-bladder. The location of pain in gall-stone colic is in the epigastrium, and it radiates toward the shoulder and scapula. The seat of tenderness is also usually over the gall-bladder, while in appendicitis it is over McBurney's point.

In the female there may be some difficulty in differentiating between appendicitis and salpingitis. In the early stage the differentiation can be made much more readily than later when pus has formed. The main points of difference are the acuteness of the attack in appendicitis and its tendency to recurrence. The pain in appendicitis is more acute and the location of the tenderness is different. A vaginal examination will reveal the seat of tenderness to be in the right pelvis; while in appendicitis the pelvic organs will not be tender. Chloroform narcosis may be necessary to complete a satisfactory examination.

Means appends to his paper the following conclusions:

An early diagnosis of appendicitis is desirable and possible if the few cardinal symptoms are understood, such as pain near the umbilicus, tenderness in the ileocæcal region, tympanites, and rigidity of the muscles in the lower right quadrant of the abdomen.

Too much significance should not be placed upon the presence or absence of pain, and high temperature. Both may be absent, while grave pathologic conditions are going

on. They may also be present to a high degree without determining the pathologic status.

Appendicitis is a surgical sickness, and should be treated from a surgical standpoint.

From the nature and location of the disease there are no known remedies given internally or applied externally that can remove the trouble.

The pathologic conditions of a diseased appendix cannot be definitely determined by external examination or from the existing symptoms.

Early operations give the best results.

The time for operation is when a diagnosis has been made, providing the environments of the patient are favorable, and there are no complications precluding the same.

The technique of the operation is governed largely by the taste of the operator and the pathologic conditions.

LAMINECTOMY FOR DISLOCATION OF THE SPINE.

JOHNSON (*Annals of Surgery*, August, 1899) reports the case of a man, thirty-two years of age, who had enjoyed good health up to the 16th of last July, when he fell from a tree, striking upon his buttocks. The injury received produced almost complete loss of motion in both lower extremities, anesthesia of the genitals and the inner surfaces of the thighs, partial anesthesia of the outer surfaces of the thighs and of the legs, with complete paralysis of the bladder and loss of control of the rectum. When the reporter first saw this patient, three months later, he had regained some muscular power in the lower extremities, so that he was able with assistance to walk a few steps. He thought that the anesthesia was slightly improved; it was, however, well marked, and no urine had been passed since the accident, except by means of a catheter. He had no control over his rectum. In the region of the lower dorsal spine there was a marked kyphosis, corresponding to the spine of the first lumbar vertebra. The distance between the last dorsal spine and the first lumbar spine was greater than normal. Palpation on either side of the spine showed the presence of two sharp, bony prominences, corresponding to the articular processes of the first lumbar vertebra, which appeared to be dislocated backward. The patient was somewhat emaciated and in poor condition generally, and it was decided that an operation might give him some relief.

A vertical straight incision, six inches in length, was made over the spines of the vertebræ, with its center over the space between the last dorsal and the first lumbar spine. The muscles were stripped away upon either side from the spines and laminæ, and the bleeding checked by means of gauze packing; few ligatures were applied. After the separation of the muscles the spines and arches of the last dorsal and of the first and second lumbar vertebræ were removed with rongeur forceps. It became evident that the arch of the last dorsal vertebra was pressing forward upon the dura. Underneath the arches of the first and second lumbar vertebræ, also compressing the dura in a forward direction, was a dense mass of new connective tissue. No evidences of fracture were found. By raising the dura and exploring the anterior wall of the spinal canal with the finger and with blunt instruments a bony ridge could be felt, which appeared to be the upper border of the body of the first lumbar vertebra. The dura appeared to be markedly distended; it was punctured, and a stream of clear cerebrospinal fluid escaped under some tension. Inspection of the cord showed nothing beyond an apparent flattening. The wound in the dura was closed, as well as the wound in the remaining soft parts, by means of sutures. Primary union occurred throughout.

After the operation the patient complained of a good deal of pain in his legs. Within a week he began to urinate voluntarily, and has now regained complete control over his bladder and rectum. He walks so well that he has been enabled to resume his ordinary occupation. The anesthesia has almost entirely disappeared, and his general health is excellent.

OBSTINATE HICCOUGH FOLLOWING NEPHRECTOMY OF CALCULOUS PYONEPHROSIS.

DESPAGE (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) reports the case of a man forty-three years old upon whom he operated for the relief of a pyonephrosis, the nature of which was determined only by an exploratory incision. Cystotomy was performed, the opening being along the outer border of the rectus muscle. This showed the tumor to be retroperitoneal and involving the kidney. The peritoneal opening was then closed and the

kidney was excised, access to this organ being afforded by an incision carried at right angles to the first cut in the direction of the lumbar region. The decortication of this tumor was extremely difficult, especially in the direction of the diaphragm; moreover, the pus sac was torn during these manipulations, and the whole wound was inundated with pus. The cavity left after this operation was drained. Because of the free bleeding there was much shock. This was followed by a temporary anuria. Under the influence of subcutaneous injections of about fourteen pints of serum the functional activity of the remaining kidney was reestablished. The patient began to vomit the day following the operation, and on the second day was tortured by hiccough, which was persistent and harassing for nine days. The anuria after the operation lasted sixteen hours. For twelve days the urine held albumin and granular casts. The patient recovered.

ULTIMATE EFFECTS OF NEPHRECTOMY.

VERHOOGEN (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) presented before the Belgian Society of Surgery a patient on whom he had performed nephrectomy for the relief of a cancer of the left kidney five years before. A tumor developed following a slight trauma, and was removed, together with the entire kidney, which was infiltrated. This growth was found to be a glandular carcinoma of the kidney with cystic degeneration. According to Verhoogen, medical literature contains only five similar cases in which survival was longer than four years. The fortunate result is attributed to the early surgical intervention, this having been practiced within two months of the injury.

The second patient presented by Verhoogen had been subjected to nephrectomy because of tuberculous pyonephrosis. The cachexia rapidly disappeared, and the patient regained all appearances of robust health. What is of far more importance, the tuberculous lesions which were manifest in other parts of the body either retrograded or disappeared completely; thus a cystitis which had been present cleared up, and the sounds of infiltration which were noted in the lungs disappeared. The hectic from which the patient suffered was cured immediately. Two other such cases have been operated on, one more than six years ago, and all have been practically well ever since.

PAINLESS LITHOTRITY UNDER THE INFLUENCE OF RECTAL INJECTIONS OF ANTIPYRIN.

DU CHASTELET (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) calls attention to the fact that rectal and vesical irrigations or injections of antipyrin have long been recognized as potent means of lessening vesical sensibility. In the subject of his present report the following solution was injected into the rectum three-quarters of an hour before beginning the operation of lithotrity, which was performed by Guyon:

Antipyrin, 24 grains;
Laudanum, 10 drops;
Water, 3 ounces.

The crushing and evacuation of the stone was absolutely painless. The bladder seemed non-sensitive to touch and tension. The operation lasted more than half an hour, and the only inconvenience experienced was that incident to the repeated passage of instruments along the urethra.

PROSTATIC CALCULI.

ROUSSEAU (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) reports the case of a man forty-five years old who had suffered from gravel since his seventeenth year. In March, 1895, he suffered from frequent and painful micturition and vesical tenesmus; moreover, there was a free purulent discharge upon the passage of the sound in the prostatic region. A perineal cut enabled the calculus to be withdrawn; it weighed an ounce. Subsequently the calculus reformed in the prostate pouch, and the patient died of repeated operations.

The second case had suffered for two years with hypogastric pains, increased by efforts of micturition, frequently recurring. The sound showed roughness in the prostatic region. The extraction was accomplished by the combined perineal and hypogastric routes, since the prostatic portion of the stone was united by a narrow neck to the intravesical portion.

VESICAL CALCULUS IN AN INFANT.

DELAGRANGE (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) observed a child five years old who for two years had difficulty in micturition. This difficulty became progressively worse and was associated with great pain, located especially in the perineum. The urine was passed only

after long-continued efforts, and would then come a few drops at a time; it contained no blood, and the moment the straining efforts were over the pain ceased. It was not aggravated by jolting. Exploration with bougie showed nothing but spasm of the compressor urethræ muscle. Rectal examination was also negative. After repeated passages of the sound the click and rough grating of a calculus was detected. This seemed to be placed in the urethra, and for its removal external urethrotomy was performed, but the calculus could not be found. The wound suppurated, but closed in a month. Intermittent sounding was practiced, but no further sign of the calculus could be detected. Somewhat later the intravesical calculus was felt, but its presence could not immediately be confirmed by subsequent examination. Some two weeks later, however, it was felt anew, and was extracted by means of suprapubic cystotomy. It was ovoid in shape, about three-fifths of an inch long and two-fifths in diameter. Healing was by first intention, and with the exception of a bronchopneumonia convalescence was uninterrupted.

A CASE OF VESICAL TUBERCULOSIS CURED FOR FIVE YEARS BY INJECTIONS OF IODOFORM OIL.

JAMIN (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) states that injections of iodoform oil in the treatment of tuberculous cystitis have in several instances enabled him to obtain in a few months a cessation of all symptoms of cystitis and the total disappearance of the Koch bacilli. The subject of his present report has been well for more than five years, although at the time she came under treatment she exhibited the symptoms, signs, and bacteriological evidence of tuberculous cystitis. At first instillations with weak bichloride were tried, but this drug was not well tolerated. Iodoform suspended in liquid vaselin, five parts to a hundred, was then employed. No inconvenience of any kind was experienced, although from one to two teaspoonfuls was employed at a time. The injections were given at first daily, then every second day. The quantity of bacilli steadily diminished, and finally these germs disappeared completely. At the same time the symptoms of cystitis had become insignificant and micturition had become normal and painless.

In the course of four and a half months sixty-two iodoform injections had been administered. In the next year these injections were given about once a week. The following year the patient was seen about twenty times and was given an injection each time. The urine by this time had become perfectly limpid, and the general health had enormously improved.

This case seems to prove conclusively the admirable results which may follow such a course of treatment. Although Jamin has injected many other bladders in the last six years with this same preparation, he has no other equally successful case to present. Often the amelioration is most striking.

Guiard, in commenting upon this communication, adds his testimony in favor of the iodoform oil injections. He especially calls attention to the innocuousness of this means of treatment. It causes no inflammatory reaction and usually produces an immediate lessening of painful sensations and reflexes. This forms a marked contrast to the use of the sublimate solution, which, though often efficacious, will produce on occasion pronounced reaction and distinct augmentation of kidney symptoms.

INFLAMMATION OF THE BURSA GASTROCNEMIO-SEMIMEMBRANOSA.

HAWKES (*Annals of Surgery*, July, 1899) reports four cases of this affection cured by excision. It is an affection which rarely occurs in literature.

The gastrocnemio-semimembranosa bursa is situated between the inner head of the gastrocnemius and the tendon of the semimembranosus muscle, and when distended furnishes a very large percentage of all bursal swellings situated in the popliteal region. It lies at the bottom of the so-called popliteal internal sulcus. This sulcus or depression has for its inner wall the shelving inner head of the gastrocnemius, and for its outer the cord-like mass of the inner hamstring tendons as they cross the back part of the knee-joint. It is best seen and felt when the patient is in the standing posture, with the full body weight borne on the lower extremities; the limiting muscles are thus made prominent and so deepen this internal popliteal sulcus, at the bottom of which lies the bursa, its center being about on a level with the upper articular surface of the tibia. It is shaped somewhat like the letter U, and rests astride the outer and tendinous border of the inner

head of the gastrocnemius, at the point where the tendon of the semimembranosus muscle overrides this border on its way to its tibial attachment below, one of the limbs of the U resting on the anterior surface, the other on the posterior surface of the gastrocnemius in this position. Its inner surfaces are normally everywhere in perfect contact, and are sufficiently lubricated by the so-called "synovial secretion" to permit the necessary gliding motions between adjacent structures without undue friction.

In size this bursa averages one to one and one-half inches in the long axis of the limb, and about three-quarters of an inch in the transverse. It is sometimes much larger, and this is particularly noticed in muscular subjects. It is sometimes multilocular, with the various cavities communicating or occasionally separate from one another. The two limbs of the U may be separated by a so-called "diaphragm" of varying thickness, often perforated at or near its middle. Bands are also seen occasionally in the sac crossing from one side to the other.

While consisting often of a closed sac, it occasionally communicates with the knee-joint; this communication, according to Gruber, being found in about one-third of these bursæ, and being most frequently encountered in well developed male adults.

While not communicating directly with the knee-joint capsule, this bursa may communicate with the bursa directly above it; which almost invariably either leads directly into the knee-joint, or is separated therefrom by a membrane so thin as to offer feeble resistance to the spread of infection.

Overaction is usually the starting-point of bursitis. This overaction may be in the form of prolonged and unusual use of the joint, or of some sudden extreme effort. In other cases there is no apparent cause, and this should suggest the possibility of tubercular, rheumatic, or luetic infection.

When this bursa becomes distended it appears first at the bottom of the internal popliteal sulcus as an oblong cystic swelling, which projects more and more into the popliteal space, until it occupies a large portion of it, the bulk of the swelling being, however, to the inner side.

A position of hyperextension of the knee causes the swelling to project to its utmost. Over it the skin and fatty layers are freely movable. A characteristic sign of this tumor is the firm attachment of its base to the inner hamstring tendons.

The contents of the bursa can sometimes be reduced into the knee-joint, when there is a free communication with this cavity; the position most favorable for this is one of semiflexion of the knee. This sign of reduction is not to be relied upon unless it is most marked, nor should absence of this sign be construed as proving that there is no communication between the bursa and the joint.

Fluctuation can usually be detected, and sometimes the movable bodies so common in these bursæ can be felt. There is rarely much pain. The patients complain rather of a sense of discomfort, of pressure, and of limited motion; moreover, the knee feels weak. As the tumor increases in size, swelling of the leg and foot may develop as a result of pressure.

A popliteal bursa usually shows itself, when distended, as a deep elastic tumor, situated farther down in the calf of the leg.

Distention of the gastrocnemio-condylar bursa alone can scarcely be diagnosed apart from the accompanying knee joint distention, on account of its deep situation under the gastrocnemial head, and from the fact that, as a rule, it either communicates with the knee-joint by a free opening, or is separated from it by such a delicate membrane that any increase of tension within the bursa would in all probability cause the bursal contents to gain access to the knee-joint.

Distention of the bursa between the semimembranosus tendon and the head of the tibia might present signs very similar to those under consideration. Hawkes has not been able to find a recorded case.

As to the treatment of this affection, which is sometimes bilateral, Hawkes rejects all methods excepting excision of the sac after compression and counter-irritation have failed. The limb is emptied of its blood by an Esmarch bandage and kept in this condition by the rubber tourniquet. The patient is then turned on the sound side and the knee is held in a position of forced extension by an assistant. The skin incision is made in the long axis of the limb over the most prominent part of the tumor, curving a little more to the inner side of the knee below so as to be over the origin of the bursa at this point. The tissues are divided down to the popliteal fascia and the upper portion of the cyst is exposed. The cyst is then freed of its adhesions without opening into the bursal sac until it has been freed from the semiaponeurotic surface of the gastrocnemius,

on which it lies in part, and from the upper three-fourths of its attachment to the semimembranosus tendon. This brings the cyst down to a pedicle of moderate size, and dissection is much facilitated if the contents of the sac are evacuated and its inner walls explored for openings communicating either with the knee-joint or with the bursa directly above. Where no such openings are found, the further dissection of the cyst wall is best carried out by introducing a finger of the left hand into the cavity of the bursa and pulling the remaining pouch over it like a glove finger. In this way the whole bursal wall may be removed with the least damage to the tendinous structures at its origin, and with a minimum risk of opening into the synovia of the knee-joint. Where a joint communication is clearly detected or seems probable from previous signs, a catgut ligature should be thrown around the pedicle at this point and the sac cut away. If there be found an opening into the bursa above, it is to be similarly treated, because of the usual communication of this latter bursa with the knee-joint; or such bursa may in turn be dissected out and its opening into the knee-joint closed. Slight flexion at the knee-joint should facilitate this part of the work, relaxing the gastrocnemial fibers under which this second bursa lies.

MODIFICATION OF PLASTIC OPERATIONS ON THE LIPS.

SILBERBERG (quoted in the *Medical News*, Aug. 5, 1899) suggests a modification in the technique of operating for cancer of the lips, which shall give a complete red edge to both lips. It is only possible when the angle of the mouth is not excised. For instance, after the usual V-shaped incision of a growth in the lower lip, a double-edged knife is passed through the upper lip, at a little less than an inch from the angle of the mouth. The blade is passed obliquely so that the mucous surface shall be wide. The incision is made along the red border to the angle of the mouth, and then on out into the cheek for an inch or more, and thence downward toward the point of the chin in a line parallel to the edge of the V-shaped wound made by the removal of the growth. Such a cut is made in both cheeks, and when the gap in the lower lip is closed by bringing together these flaps from both cheeks the angles of the mouth will be shifted from their usual positions to the points in the upper lips where the incisions began. The two lips thus being made of equal length, deformity of the mouth is avoided. This principle of operation can be adapted to any of the incisions about the mouth, which leave its angles intact.

HERNIA FOLLOWING OPERATIONS FOR APPENDICITIS.

HARRINGTON (*Boston Medical and Surgical Journal*, August, 1899) states that at the Massachusetts General Hospital from January, 1888, to August, 1897, 503 cases of appendicitis of all varieties recovered after operation by the various surgeons. He personally examined 236 of these cases, and received letters from 139 others. He found that many who had reported themselves as perfectly well had marked general bulging of the abdominal wall on the side operated upon. Some had protrusions of the wound, and some had hernias of which they were not aware, as they caused no trouble.

Of the 236 cases examined, eighty-five were tightly closed at the time of operation; eighty-eight were partly closed at the time of operation; and sixty-three were open wounds. There were fifty-two cases of bulging in the wound—twenty-seven to a slight extent, and twenty-five to a marked extent. There were twenty-seven cases of true hernia. Most of these, as was the case with the bulging, developed in the wounds which had not been closed at the time of operation. The wounds partly closed were followed by fewer hernias than open wounds. Weakening of the abdominal wall existed in a large percentage of the cases which were drained. The muscular and tendinous fibers should not be transversely cut in any appendix operation unless it is unavoidable.

As little drainage material as safety will permit should be used. When drainage is necessary the wound should be closed as far as possible with sutures and the drainage removed as early as safety will permit. If the wound can be closed immediately the tissues should be restored to their normal position by suturing each layer.

Stout belts and trusses are of little value and may even do harm.

The abdominal muscles from the earliest period possible after operation should be developed by appropriate exercises.

If hernia or marked bulging appears, operation for cure is safe and satisfactory.

GASTRIC ULCER AT THE MASSACHUSETTS GENERAL HOSPITAL.

GREENOUGH and JOSLIN (*American Journal of the Medical Sciences*, August, 1899) append to an interesting study of the records of the Massachusetts General Hospital a comparison of these records with those of other institutions. They have published the following conclusions:

Gastric ulcer is more frequent in Boston than in Chicago, Baltimore, Denver, or San Francisco.

It is five times as common in women as in men.

The average age in men is thirty-seven years; in women twenty-seven.

Hemorrhage was present in eighty-one per cent of the cases. It caused the death of seventeen per cent of the male patients, but only 1.27 per cent of the females. No woman under thirty died of hemorrhage from gastric ulcer during this period.

The blood was that of a chlorotic type of anemia.

Perforation occurred in 3.2 per cent of the cases, and none of these patients left the hospital alive.

Of 114 patients eighty per cent were discharged cured or relieved, but at the end of an average period of five years only forty per cent remained well. The mortality at the same time (due to gastric disease) was twenty per cent; among the males it was thirty per cent, with the females nine per cent.

The excessive mortality of ulcer among men, its occurrence in life a decade later than in women, and the absence of fatal cases of hemorrhage in females, point to a difference of the ulcer in the two sexes.

The mortality of eight per cent, and the failure of medical treatment to effect a lasting cure in sixty per cent, of the patients indicate the need of surgical intervention in other than emergency cases of this disease.

THE PRINCIPLES OF THE TREATMENT OF INJURIES OF THE SPINAL CORD.

BOLTON (*Annals of Surgery*, August, 1899) states that so far as a spinal injury itself is concerned, the rules governing the treatment of fractures, dislocations, and distortions hold perfectly good within the limitations imposed by the anatomy of the spine, and that from this point of view there can be no reasonable objection to reduction by operative measures, if need be. So that this part of the problem may be dismissed without further discussion.

The cord injuries, however, occur in such variety, and their symptomatology is oftentimes so puzzling, that confusion in the identification of the lesion present has sometimes led to the adoption of methods of treatment whose results have been most misleading.

The repair of injuries of the cord after division is by the growth of ordinary cicatricial tissue.

Extra-medullary hemorrhage occurs oftenest between the dura and the wall of the spinal canal, far less often within the dura. It is yet to be proven that hemorrhage between the dura and the bone ever occurs in sufficient volume to give rise to symptoms referable to the cord by causing compression. The bleeding occurs chiefly from veins of small size, and is capable of wide distribution before it can exert pressure upon the cord.

Complete lesions of the cord occur most commonly in fractures and dislocations of the vertebræ, the result of forced flexion of the spine, in which the affected portion of the cord is crushed against the body of the lower vertebra by the arch of that above or by fragments of vertebra or intervertebral disks displaced into the canal.

A similar result may be produced by a direct or indirect fracture of the laminæ of a single vertebra with depression of the fragment into the spinal canal upon the cord.

The cord is pulpified within the pia, and disintegration of the cells and fibers in the affected area immediately follows. There is no regeneration of nerve elements, repair taking place by the growth of ordinary connecting tissues.

Incomplete lesions of the cord occur at times under the conditions named above, but are more often incident to stab or bullet wounds or distortions of the spine. Degeneration occurs above, below, and beyond the lesion, and repair takes place by the growth of scar tissue. The directly injured cells and fibers are lost.

Hemorrhages in the cord as a rule occur in the gray matter. Their site is at the cervicodorsal or dorsolumbar junction, in those portions of the cord corresponding to the most freely movable parts of the spine; and this fact points to their probable etiology by overtension in the axis of the cord.

Along with hematomyelia there may be, and not infrequently is, more or less contusion of the cord.

Considering these lesions from the viewpoint of their amenability to treatment, it appears that extradural hemorrhage does not give rise to cord lesions or symptoms, and requires no treatment.

Total lesions of the cord are irremediable, because the cells and fibers of the entire thickness of the cord are destroyed, are never regenerated, and are replaced by cicatricial tissue. The lesion thus is permanent and requires no treatment.

In hematomyelia the clot is absorbed; its site persists as a cavity or is filled by newly formed tissue; irregularities of circulation in the surrounding portions of the cord adjust themselves. There may be great amelioration of the symptoms.

There is therefore no therapeutic indication, and no remedial treatment is possible.

In partial contusion of the cord the lesion results in permanent destruction of cells and fibers; disturbances of circulation adjust themselves. Repair is accomplished by cicatricial tissue. No treatment is available.

In open injuries of the cord there are destructions of cells and fibers and disturbances of circulation. In addition, infection may occur or a foreign body be introduced and left in or lodged against the cord, and by its continued presence produce great disturbance of circulation and consequent extensive degeneration and necrosis of cells and fibers. Repair occurs by cicatricial tissue as before.

But here active operative interference is indicated to remove foreign bodies, to facilitate disinfection, to prevent more extensive necrosis, and to facilitate drainage.

TRAUMATIC RUPTURE OF THE COLON.

MAKINS (*Annals of Surgery*, August, 1899) has successfully treated in the last three years two cases of rupture of the ascending colon. In his second case, not previously reported, the indications for exploration were the nature and history of the injury (the force had been severe and applied to a strictly local area which was marked by a distinct abrasion), frequent and early vomiting, early development of the rigidity of the abdominal wall, local tenderness, impairment of resonance in the right iliac region, the absence of definite signs of injury to the urinary bladder or solid viscera, combined with the evidence of serious injury as indicated by the degree of shock, abdominal pain, rise in pulse, general pallor, and perspiration. On opening the abdomen there was a well marked fecal odor, and a large amount of plastic lymph had developed on the surface of the coils of the small intestine lying in the right iliac region, and the pelvis on the right side. The operation was undertaken seven hours after the injury. Makins, as a result of study of the records of the St. Thomas Hospital between the years 1889 and 1898 inclusive, finds that of the 8153 cases of injury to various parts of the body treated in the hospital, 292 (3½ per cent) were injuries of the abdomen. Of these 292 cases, eighty-nine were ruptures either of the abdominal viscera or urinary bladder. Of the eighty-nine cases, twenty-one were ruptures of the intestine, of which six were the result of kicks by horses, five were run over, four fell, two were caught between buffers, one was struck by the end of a plank on a sawing machine, one was pinned by the pole of a van against a wall, one was struck by a falling box, and one was caught and rolled between two passing railway trucks.

Of the twenty-one cases, the small intestine was ruptured in sixteen, the large in five. A consideration of the points elucidated by a study of these cases shows that the actual determining elements as to the part of the intestinal tube likely to be injured are that the violence be exerted on that part of the belly cavity supported by a bony wall posteriorly, and hence, that the bowel to be injured should either be fixed in the lower half of the abdomen or possess a sufficiently long mesentery to lie in that region.

Blows over the abdomen above the level of the umbilicus are very unlikely to cause a rupture of the intestine, unless the violence be so directed as to allow the gut to be directly compressed against the spinal column, a matter of some rarity. If blows so directed are received, injury to the mesentery or omentum is at least equally as probable as one to the bowel itself.

In none of the cases was there a large extravasation of fecal contents. In six cases shock was severe, in eight cases it was slight, and in three it is definitely stated that there was no shock. Abdominal pain is a constant sign, but not necessarily either severe or continuous. Rigidity and immobility of the abdominal wall are almost constant, but are not pathognomonic of the injury. Abdominal tenderness is to be regarded as a constant sign, but is often obscured by injury which is present in the abdominal wall.

In all cases the pulse shows a steady tendency to rise in frequency and lose in strength, practically in an identical manner to that in which it acts in other cases of peritoneal septicemia. This is regarded by Makins as the most important single sign in the question of deciding on abdominal exploration.

A definite diagnosis between simple rupture of the intestine and rupture of the mesentery is often impossible. The latter condition, however, is suggested by the presence of a large quantity of free blood in the peritoneal cavity, since uncomplicated ruptures of the intestine are rarely accompanied by free hemorrhage. The violence is usually a crush or gliding force, such as a wheel passing over the abdomen.

Of the fifteen cases operated upon, there were three recoveries, or twenty per cent.

The operation should be performed if rupture is either diagnosed or suspected. A median incision between the umbilicus and the pubes, in or slightly to one side of the linea alba, is generally to be preferred. After opening, the site of the rupture is suggested by the presence of the plastic lymph, which is developed early, and especially in the neighborhood of the rent, and often by local peritoneal effusion, which may be foul-smelling. Moreover, blood is usually present in small quantity near the seat of rupture, and from the opening gases may escape.

In the presence of retroperitoneal emphysema, pointing to injury to the colon or duodenum outside the limits of their peritoneal covering, Lembert's suture is to be preferred in closing the wound.

When surrounding contusion is severe, or complete transverse solution has occurred, resection of a suitable portion of the gut should be followed by closure of the ends of the cut bowel, and the establishment of a lateral union or anastomosis, either with Halsted's suture or a Murphy button.

The abdominal cavity is best cleansed by a preliminary dry sponging of the obviously infected area, followed by irrigation, and, if necessary, the protrusion and washing of the small intestine and thorough flushing of the pelvis and various peritoneal fossæ. Irrigation prior to the dry cleansing of the most severely affected area is to be avoided.

Drainage is to be avoided if possible, but if, from the extent of the infection or the special distribution of it, it is deemed necessary, it should be abundantly provided for by means of a gauze plug.

In the after treatment shock is best combated by saline infusions. Rectal feeding should be relied upon for the first twenty-four hours; after this period fluid nourishment may be administered by the mouth.

Morphine should be avoided if possible, and should distention and sickness herald the advent of septic infection, saline purgation should at once be resorted to as in other cases of peritoneal septicemia. Sulphate of magnesia may sometimes be retained, even when vomiting is troublesome, by washing out the stomach preliminary to administering each dose.

NEPHRALGIA.

HUBBARD (*Annals of Surgery*, August, 1899) publishes a history of five cases of nephralgia occurring in the Massachusetts General Hospital.

In the first case there was a history of renal pain and the passage of gravel and small stones, aggravation of the pain on motion and jarring, and pus and blood in the urine, the latter at times in large quantities. This patient was operated upon in 1891 for stone, but none was found. He remained well for seven years, when he had a relapse, passed blood and pus, and lost thirty pounds in weight. He then passed some gravel, and since that time has been free from pain, passes clear urine, and has gained in weight.

The second case had a sudden pain in the right loin running down to groin and testis five years ago, which pain was accompanied by vomiting. The second attack followed in a year, and since then these attacks have been monthly. He never passed gravel nor had any trouble with micturition. The urine was normal and there was no kidney tenderness. He was operated upon in 1894, but the kidney was not opened. Three months after leaving the hospital there was a reminder of the attacks, another three months later, and since then this patient has remained well.

The third case gave a history of passing bloody urine, and every three weeks or so had severe pain in left side. There were recurrences of the pain in the left side, and coincident with these attacks of pain the urine became bloody, and large clots were passed. He was operated upon in 1895. The needle grated on something as it explored the kidney, but an incision one and one-half inches long, through the posterior edge and pelvis of the kidney, failed to find the stone. The patient reported that he had had a few attacks of bleeding

The fourth case suffered from pains across the back and passage of gravel, the largest piece the size of a pea. His pain was greatly aggravated by jolting. The urine contained pus. He was operated upon in 1897. The kidney was needled, but no stone was felt. The kidney was then incised and explored by the finger, with negative result. A year and a half later he reported that he was entirely free from pain and troubled less from frequency of micturition.

The fifth case gave a history of renal colic so severe as to require hypodermic injections of morphine. No blood, stones, or gravel had been noticed in the urine. He was slightly tender over the region of the kidney behind. At one time a few red corpuscles were found in the urinary sediment. He was operated upon in 1897. The kidney was incised along the convex border from the middle to its lower edge, and explored by the finger, but no stone was felt. A year and three-quarters later the patient wrote that he had gradually improved and had no pain in that side. He had suffered from a severe attack of pain in the other side and passed some blood.

Of the five cases, Hubbard considers that three have been cured and two relieved, with still some doubt as to the final outcome in both of them.

These few cases are scarcely sufficient either in number or in careful and detailed study to form the basis of a differential diagnosis and treatment.

PANCREATIC APOPLEXY.

RASUMOWSKY (*Archiv für Klinische Chirurgie*, 59 Band, 3 Heft) reports in detail a case of pancreatic apoplexy occurring in the person of a doctor. He considers this affection as distinct from the more commonly recognized but none the less rare hemorrhagic pancreatitis.

The patient had suffered since youth from acute and chronic indigestion. Following a very moderate indulgence in eating and drinking, he was seized with pain in the epigastrium, which in a few hours increased to first crippling and then agonizing intensity. There was vomiting; the bowels were freely opened by castor oil. There was dulness on percussion over the stomach, especially in the right nipple line, and this part of the abdomen was markedly distended, producing a distinct contrast with the lower part of the belly, which even seemed retracted.

The pulse mounted rapidly from 80 to 120 and 150 beats to the minute, and shock was so pronounced that the patient's life was despaired of. There was constant vomiting, suppression of urine, and dyspnea. Under active stimulation and the use of opium for the suppression of the agonizing pain, the patient rapidly recovered.

The temperature, which had fallen to 95.5°, became normal, and after nine days the patient was able to leave his bed. On the twenty-second day following his attack he took a ten-hour railway journey and consulted Rasumowsky, who with the help of two therapeutists and three surgeons noted general emaciation, pronounced anemia, and a projecting tumor in the epigastric region, most pronounced to the right of the middle line. The swelling extended to both sides, reaching to a little beyond the line of the nipple. It was most marked when the patient was in the standing posture.

Liver dulness was continuous with that of the swelling.

The relation of the stomach and tumor was not determined. An incision was made first over the most prominent part of the tumor. As this did not afford proper access, a second cut was made in the middle line. The lesser omentum was found tightly stretched over the surface of a fluctuating growth.

The diagnosis made previous to operation was of a gastric ulcer. To enable the surgeon to evacuate the pus which was suspected to exist, and at the same time to protect the general peritoneal cavity from infection, the Paquelin cautery was used in making an incision through the thin border of the left lobe of the liver. Blood and clots escaped together with necrotic portions of pancreatic tissue, as was subsequently determined by microscopic examination.

The cavity was stuffed with gauze, and the patient made a slow but uninterrupted recovery, though for three days he complained of severe pain similar to that which he had experienced during his acute attack.

A small fistula due to the presence of two ligatures did not heal for five months.

An interesting discussion as to the relation of pancreatic cyst and pancreatic hemorrhage follows the report of this case. The author holds that both traumatic and idiopathic hemorrhage into the pancreas may be the starting-point for the development of cysts.

As to the diagnosis, the idiopathic hemorrhages are commonly preceded by dyspeptic symptoms for months, often for years.

Diagnosis is made or can be suggested by the seat of pain, and particularly by epigastric distention and tumor. Rasumowsky states that surgical intervention during the acute period is not advisable. The cases in which an operation was practiced, usually on the basis of a mistaken diagnosis, ended fatally. The bleeding does not take place from a single large vessel but from a number of small bunches; hence if it could be reached it could not easily be checked.

During the acute period, stimulation, subcutaneous and rectal injections of normal salt solution, and, if Massé's theory as to the etiology of the hemorrhage (*i.e.*, the action of hydrochloric acid on the tissues of the glands) be accepted, injections of soda solution into the stomach and into the veins would be indicated.

After the acute period has passed surgical intervention is absolutely necessary, since the resorption of the large exudate can scarcely be counted on, and, moreover, infection of such an exudated place near the alimentary canal is extremely likely to occur.

This large exudate not only interferes with the functions of the stomach, but gives rise to symptoms of intestinal occlusion. Moreover, by its pressure upon the thoracic duct it may interfere with absorption of the chyle from the intestine; thus would be explained the marked anemia frequently characteristic of these pancreatic cysts.

The place at which these cysts should be opened must depend upon their position. On general principles Gussenbauer's route is to be preferred — beneath the greater curvature of the stomach and between this organ and the transverse colon. Sometimes the route through the lesser omentum or even through the liver itself may be easier.

Many of these apoplectic collections of blood may be best reached from the lumbar region. Removal of clots and of fragments of pancreatic tissue should be accomplished with great gentleness. If bleeding occurs irrigation with hot water and firm packing are indicated.

THE OPERATIVE TREATMENT OF VARIOUS INTERNAL DERANGEMENTS OF THE KNEE-JOINT.

WALSHAM (*British Medical Journal*, July 29, 1899) classifies the derangements of the knee-joint which are amenable to surgical intervention as follows:

Loose bodies; detachment or displacement of the semilunar cartilages; enlargement with nipping of hypertrophied synovial fringes; and elongation of the ligamentum patellæ.

All of these conditions may be attended with somewhat similar symptoms, namely, effusion into the synovial sac, a feeling of weakness or disability in the joint, some limitation in the range of flexion and extension, pain, often sudden, and even excruciating during certain movements, and at times a sensation of something slipping in or around the joint. There is, further, generally a history of some injury more or less severe, such as a fall or blow on the knee, or a sudden strain or twist of the joint.

The most obvious sign, perhaps, attending the various derangements is the synovial effusion, and the case is probably diagnosed, and correctly, as one of synovitis; but it is synovitis and something more, and unless this additional something is made out, except it consists in a mere rupture of some ligamentous fibers, the routine treatment of synovitis will not as a rule cure the patient. The progress of such cases is this: after treatment by rest, evaporating lotions, bandaging, perhaps a splint, the synovitis subsides, but recurs as soon as the patient begins to get about, recurrence being then often attributed to a fresh twist or strain. It is usually after there have been several such recurrences that these cases have come under notice.

Where a loose body is the cause of the trouble the diagnosis is usually easy. It can be felt as a rule, as we all know, to slip about in the joint, not only by the surgeon, but by the patient himself. The diagnosis is not, however, always obvious.

The diagnosis between a detached semilunar cartilage and a hypertrophied synovial fringe is sometimes far from easy. The characteristic signs of a detached semilunar cartilage as given in our text-books—namely, a sudden locking of the joint and evident projection of the displaced cartilage — is not common. More often the diagnosis has been based on a peculiar creaking or sudden click or snap over the inner portion of the joint combined with a partial locking and some limitation of movement, and perhaps slight swelling or pain on pressure over the situation of the cartilage.

The signs of hypertrophied synovial fringe are very similar, but there is not as a rule any locking of the joint, nor much, if any, limitation of movement, and the fringe may frequently be felt to roll like a soft pad under the finger when applied over the line of the articulation. The disability, however, is at

times quite equal to that produced by a displaced cartilage; but it will be found on careful questioning that the pain only occurs when the joint is semiflexed, and then not unless the semiflexion is combined with some slight lateral twisting of the tibia on the femur —that is, the semiflexion separates the articular surfaces and the twisting movement carries the hypertrophied fringe between them, where it becomes nipped when the limb is again straightened.

More than one fringe, it is well to remember, may be present; indeed, at times a series of fringes extending from the articular surface along the margin of the alar ligament may exist.

An elongation of the ligamentum patellæ is less common, but as it gives rise to symptoms similar to those of the other conditions mentioned, it may be readily confounded with them. As in the case of a loose body, a detached semilunar cartilage, or nipped synovial fringe, the patient may fall to the ground with sudden pain, the joint becoming momentarily locked. It will be found on careful inquiry that what really happened here was that the patella, consequent upon its elongated ligament, momentarily slipped over the external condyle, allowing the patient to fall. On measuring the ligament will be found half an inch to an inch longer than that of the opposite limb; and when the patient sits with the knee flexed at a right angle, the patella rests on the front surface of the condyle, so that its anterior surface, instead of being directed forward and slightly upward as in the normal knee, will be found to look directly upward.

For all these conditions, excepting the last, it may sooner or later become necessary to open the knee-joint if a radical cure is to be obtained. If a loose body is present its removal is practically the only reliable method of giving relief. When an apparatus has failed, when a patient is unwilling to give up athletic exercises, or is a candidate for the services, or is going abroad where apparatus could not be readily mended, or is engaged in such occupation as necessitates mounting scaffoldings, ladders, etc., where the breaking of his instrument might subject him to sudden locking of the joint and to a consequent serious fall, the joint should be opened without delay.

With proper precautions the knee may be freely exposed and explored with a reasonable degree of certainty that no harm will result. The precautions are the five following:

1. *Preparation of the Patient.*—He should be confined to his bed or couch for three or four days to a week, the secretions and diet regulated, the limb firmly secured to a Macintyre or such other back splint as it is intended he should wear after the operation, and the skin in the region of the incision rendered thoroughly aseptic. Neglect of these precautions may lead to most serious consequences. If any synovial effusion is present, this should be got rid of by appropriate treatment before the joint is opened. If this is not done there is considerable risk of septic trouble spreading to the interior of the joint should any superficial stitch suppuration accidentally occur.

The ascepticizing of the skin, it goes without saying in these days, is of the highest importance, especially in hospital patients, in whom the skin of the knee is often thickened and begrimed, and many washings and purifications are necessary to get rid of the excessive epithelium.

2. Arrest of all hemorrhage before the capsule is opened by forcipressure, torsion, or ligature, if necessary, and the thorough cleansing of the joint after the operation from all blood-clot by thoroughly flushing out the cavity with a warm mild antiseptic lotion, such as boracic acid.

3. *Accurate Suture of the Synovial Membrane and Capsule.*—Silk may be used with safety if kangaroo tendon is not available. The serous surfaces of the synovial membrane should of course be placed in contact, and the capsule drawn together by the continuous method of suture.

4. Absolute rest on a well-fitting back-splint till the skin wound is soundly healed, firm pressure being applied by a bandage over the joint to prevent oozing.

5. *Early Passive Movements and Massage.*—These are usually begun on the fourteenth day, the patient being up and walking about on the twenty-first day. The early movement is most essential to success. It prevents the formation of adhesions, whilst the massage promotes absorption of any excess of inflammatory products in the healing of the wound.

OPERATIVE INTERVENTION FOR TUBERCULOSIS OF THE KIDNEY.

In an editorial in the *Medical News* of August 12, 1899, based upon a communication of Reynolds printed in the same journal, the writer thus comments upon the present

status of operative interference in cases of renal tuberculosis:

"We no longer believe that microorganisms can pass through a healthy kidney, and therefore when we are able to demonstrate in the urine taken directly from a ureter the presence of tubercle bacilli, it points infallibly to the existence of a tuberculous focus somewhere in the urinary tract of that side. The indication thus furnished for nephrectomy is an absolute one.

"It must be remembered, moreover, that the recent labors of Caspar and Nitze in Berlin, and of their followers all over the medical world, have made it evident that catheterization of the ureters in the male is very often, certainly in a majority of cases, not only possible but comparatively easy. The collection of the urine directly from the ureter gives much more reliable information than does even an exploratory incision, since the external surface of the kidney when exposed to inspection may be perfectly healthy, and yet a tuberculous focus exist in the interior of the organ. Communications of pathologic processes occur much more readily with the pelvis of the kidney than they do with its external surface. When the tuberculous foci are very limited in extent and therefore most hopeful for operation, they will often permit the discharge of tubercle bacilli into the urinary passages. The chances for early diagnosis and operation are with this method rendered very promising indeed.

"It would seem, then, to be only a question of a short time until the puzzling cases of progressive tuberculous renal trouble running their course without any definite pathognomonic symptoms that reveal the real cause with any assurance to ordinary diagnostic methods will cease to be the *opprobrium medicinæ* they have been up to the present time. The most striking uniform symptom in such cases is often a hopelessly aggressive emaciation, which yields to no medicinal treatment, and so makes them veritable nightmares for the medical attendant having them in charge."

PERITONEAL ADHESIONS FOLLOWING CONTUSION OF THE ABDOMEN.

NOCAK (*Centralblatt f. Chirurgie*, No. 37, 1899) notes that contusion of the abdomen is often followed by extensive adhesions gluing the intestines together or to other organs within the abdominal cavity, and causing persistent and exhausting colic, and obstinate constipation. He reports four cases of this nature operated on by Crédé. The adhesions were freed, and the patients were either greatly relieved or completely cured. It is noteworthy that the symptoms often developed long after the injury, and, indeed, at a time when the patient had almost forgotten it.

THE EARLY RECOGNITION AND MANAGEMENT OF MALIGNANT DISEASE OF THE DIGESTIVE SYSTEM.

EINHORN (*New York Medical Journal*, July 29, 1899), after calling attention to the diagnostic helps afforded by the stomach-tube and the chemical analysis of the gastric contents, states that our methods are still comparatively crude, and as a rule permit us to recognize the malignant affection at a stage when it has already progressed to a considerable extent. The conditions under which the diagnosis is justifiable are summarized as follows:

Gradually developing dysphagia and the presence of a stricture in the esophagus, especially if a particle of tumor showing the characteristics of cancer has been brought up with the tube, or the above symptoms, with frequent small hemorrhages, make the diagnosis of malignant disease positive.

With reference to the stomach and pylorus, the following rules upon which to base a positive diagnosis of cancer are suggested:

1. If particles of tumor are found (in the wash water or in the tube) which under the microscope reveal the characteristic picture of a malignant growth.

2. The presence of a more or less large tumor with an uneven surface, belonging to the stomach and associated with dyspeptic symptoms.

3. The presence of a tumor associated with frequent hematemesis.

4. Constant pains, frequent vomiting, ischochymia, emaciation—all these symptoms being quite permanent and not extending over too long a period of time (six months to a year).

5. Tumor and ischochymia.

6. Emaciation, ischochymia, presence of lactic acid.

7. Constant anorexia and pains, not yielding to treatment, accompanied by frequent small hemorrhages of coffee-ground color.

For the small and large intestines the following points will prove of service in making the diagnosis of cancer:

1. If by abdominal or rectal palpation a tumor can be detected which is situated in the small or large bowel, and accompanied by symptoms of cachexia and disturbances of defecation.

2. The presence of a tumor as just described, and the discovery of small particles of the neoplasm in the evacuation giving microscopically the appearance of a cancerous growth.

3. Gradually increasing disturbances of the bowel for a few months in a heretofore healthy person, accompanied by cachexia and symptoms of a beginning or already developed stricture of the bowels, and the presence of a small particle of growth in the stools giving as above, microscopically, the picture of cancer.

After having thus summarized the conditions under which a positive diagnosis of malignant disease of the digestive system can be made, let us see how the diagnosis can be established early. There are no new points which can be suggested for this purpose. A thorough examination of the physical state of the patient—paying strict attention to all our usual methods in this direction—and a full knowledge of the history of the case, will permit us to discover malignant disease comparatively early. In quite a number of instances we shall not be able to make a positive diagnosis of cancer, but our suspicions of a malignant trouble will be aroused. Here frequent examinations and further observation of the case are of intrinsic value. Sometimes examination under narcosis may afford better results. In rare cases, in which a probable diagnosis of malignant disease can be made, an exploratory laparotomy with the view of establishing the diagnosis and performing a radical or palliative operation will be required.

Having made the diagnosis of malignant disease, the question arises, What shall be done for the patient? The following may be given in brief as an answer applicable to the digestive system in general:

1. Whenever the tumor is accessible for operation, and there is the slightest hope of curing the patient, the complete extirpation of the growth should be performed.

2. If the tumor is not accessible for operation, or the entire removal of the malignant disease is practically impossible, palliative operations will serve to alleviate suffering and prolong life, and should be undertaken in cases requiring them.

3. Cases of malignant disease operated upon, as well as those without operation, require for their treatment and management a skilful physician, who is able to lessen suffering and nearly always also to lengthen life, even under the most trying conditions.

Cancer of the esophagus and cardia does not for the present permit of any radical operation. As soon as the diagnosis is positive and the dysphagia is such that the patient is not able to partake of sufficient liquid and semiliquid food, in order to maintain his weight, gastrostomy should be performed wherever feasible.

Cancer of the stomach and the entire intestinal tract should be operated upon, if discovered early enough. Practically the outlook for a cure after a radical operation of some portion of the intestinal canal becomes less encouraging the farther away from the anus the tumor is situated. Malignant disease of the pylorus can often be recognized quite early through the ischochymia which it usually produces. In these instances a laparotomy should be performed as soon as possible and the pylorus resected, with establishment of a new communication between stomach and duodenum if possible; if not, a gastroenterostomy alone should be made. The latter operation is in many cases of decided benefit, facilitating nutrition and rendering the pains less.

Cancer of the lesser curvature of the stomach or of the posterior wall is usually recognized quite late, rendering radical operations practically impossible. If cardia and pylorus are not involved, there will be no need of operation, and the usual palliative remedies should be administered. The same may be said also of cancer of other portions of the stomach not involving either cardia or pylorus, in which a radical operation does not appear possible.

Cancer of the rectum can be recognized at an early stage, and resection of the neoplasm is here accompanied by brilliant results. If the tumor is located farther up in the large bowel or the small intestine, the results of an operation are not so promising, for here the recognition of the growth is possible only at an advanced period, and by that time adhesions with other organs and cancerous infection of the glands have already taken place.

Excision of the tumor and resection of the intestine in the neighborhood of the neoplasm, with an end-to-end anastomosis, should be practiced whenever feasible. In case, however, total resection is impossible, an entero-enterostomy or enterocolostomy, or, if the

cancer is situated in the rectum, a colostomy (artificial anus), will be of benefit. These operations are palliative in nature and prolong life, at the same time making it more comfortable. They are intended to allay the symptoms of obstruction and to carry the fecal matter over a new route, not passing through, and thus not irritating, the cancerous area. In some instances of inoperable cancer of the rectum curettage, followed by the application of the thermocautery, may be of benefit for a short time.

RECURRENT SPONTANEOUS EPISTAXIS.

NATIER (*La Parole*) holds that by means of the mirror and specula commonly employed in the practice of rhinology the seat of bleeding from the nose can be accurately determined and effectively treated, reporting in detail a number of cases as proof of this contention.

The hemorrhage always takes place from the septum, and by predilection from the cartilaginous septum, about four-fifths of an inch behind the free border and an equal distance from the floor of the nose. The seat of epistaxis can often be perceived by lifting the tip of the nose and allowing light to fall in without the use of the speculum. It is rarely bilateral. It is often persistent, recurring without treatment for many years.

The immediate treatment of these cases consists in packing with antiseptic cotton or gauze. The curative treatment, designed to prevent recurrence, consists in transformation of the ulcerated and friable mucous membrane from which the blood flows into cicatricial tissue. This is accomplished by cauterization. The author prefers the galvanocautery, the region having previously been anesthetized with cocaine.

RESECTION OF NEARLY TWO METERS OF SMALL INTESTINE, AND ITS EFFECT ON DIGESTION.

CARL SCHLATTER (*Correspondenz-Blatt f. Schweizer Aerzte*, July 15, 1899; quoted in the *British Medical Journal*, July, 1899) publishes the following case:

An Italian, aged twenty-three, was stabbed in the hypogastrium at 7 P.M. on October 9, 1898. He fell to the ground with intestine protruding from the wound, but with assistance walked some 300 meters to his home, where a provisional dressing was applied; he was brought in an ambulance to the Zurich clinic at 3 A.M. on October 10. About two meters of small intestine, the greater part deep blue or black in color, with quite dull serosa, was found protruding from the right hypogastrium; there was no collapse. Under ether (4 A.M.), when the skin and edges of the wound had been disinfected, it was found that the prolapsed intestine, jammed fast in the wound, was already partially necrotic; reposition was out of the question, and the only hope lay in total resection. Enough intestine was carefully drawn out to allow the operation to be performed through sound tissue. Wolfler's compressors were applied to each end, Péan's forceps closing the intermediate part and successively securing the mesentery as it was rapidly divided along its intestinal insertion. Union of the defect in the mesentery after the forceps had been replaced by ligatures was accomplished by separate silk sutures. The bowel was brought end to end by three rows of suture. The wound was then enlarged to permit reposition, when it was found that the constricting ring was formed by the slit in the skin, which lay three fingerbreadths above and parallel to Poupart's ligament; on the peritoneal side the wound was much larger.

As there was no effusion of blood into the peritoneum or sign of any opening into the bowel, the abdominal wound was closed by suture in tiers. The resected gut was 192 centimeters in length unstretched, and was entirely from the ileum. Except for an attack of urticaria there was hardly any reaction. On November 3 the patient was feeling quite well, on full diet, and weighed 64 kilos; on December 7 he was discharged, weighing 75 kilos, looking well, with a good appetite, and almost daily stool. Careful observation of the assimilation of albuminoids and fat was carried out for nine days; the patient was left entirely free in his choice of the kind and amount of the ordinary food of the hospital, and consumed a surprising quantity of nitrogenous and fatty matter. The loss of nitrogen was on the average 10.47 per cent, about the extreme normal loss, but the loss of fat was increased, being on the average 13.91 per cent, with variations from 9.47 to 20.26 per cent. In Fantino's patient, from whom 310 centimeters of ileum was removed when he was sixty years old, the loss of nitrogen was on the average twenty-nine per cent, that of fat as much as twenty-three per cent, varying from 17.2 to 34.3, but in spite of deficient assimilation wasting was avoided by overfeeding. Dreesman collected twenty-six cases (including his own patient) of resection

of more than one meter of the small intestine; seventeen survived the operation, five of whom suffered from digestive troubles; in all the other twelve the digestive functions were uninjured, but in ten the resected intestine measured less than two meters. There have been only six cases of the resection of more than two meters of the lesser bowel: 205 centimeters (Kaoberle); 209 centimeters (Kocher); 215 centimeters ileum (Dreesman); 234 centimeters ileum (Shephard); 310 centimeters ileum (Fantino); and the most extensive, 330 centimeters of small intestine (Ruggi) in a boy of eight for circumscribed peritonitis. Only two of these patients escaped with the digestive function unimpaired, namely, the first (205 centimeters) and the last (330 centimeters). Dreesman concluded that resections of less than two meters could be borne with impunity when there were no complications, but only young people could support a loss of greater length without the digestion being impaired.

AN EFFECTIVE TREATMENT OF VESICAL HEMORRHAGE WHEN CAUSED BY PAPILLOMATOUS GROWTHS.

HERRING (*British Medical Journal*, July 29, 1899), following the method practiced by Sir Henry Thompson, is able to report a number of cures by injection of silver nitrate solutions. The diagnosis of the cases was invariably confirmed by removing a portion of the tumor and submitting it to microscopic examination. Such specimens are usually obtained by washing out the bladder freely with warm sterile water, examining the débris brought away for shreds of tissue, and mounting them at once.

The instruments used are a soft, slightly elbowed catheter with the eye situated near the end, and a four-ounce india-rubber bottle furnished with a brass taper nozzle and stopcock, together with a standard solution of one grain of nitrate of silver to one drachm of distilled water, acidulated with a small quantity of free nitric acid.

The injections are commenced by adding half a drachm of the standard solution to four ounces of warm water, and the strength is gradually increased every day or two until one or even sometimes two drachms has been added. The strength should be so regulated that no pain, increased frequency of micturition, or straining will follow the injection. Occasionally, when the maximum strength has been in daily use for a considerable time, the bladder becomes irritable, and the strength should be reduced, but the treatment should not be stopped.

As soon as the patient has learned to inject himself efficiently—throwing into the bladder half the contents of the bottle, retaining the solution for a few seconds and then letting it run off, and repeating the same process with the second half—he should do it daily; at night, perhaps, is the best time, for it is always advisable to rest afterwards. Before a patient can be trusted to make the injection himself, it is necessary to give him a few lessons in a uniform and systematic way of doing it, so as to insure perfect aseptic conditions, absence of injury or irritation to the organs, and the desired effect of the nitrate in the bladder. He should continue this without intermission for four, five, or six months, reaching his maximum strength of solution some five, six, or more weeks from the commencement of the treatment. If then bleeding has ceased, as it should have done, he may inject every other day for six months longer, and afterwards every third day for a variable period. A patient having been subjected to this long course of treatment may discontinue the application, even for a year, without any symptoms recurring; but he should return to daily injections—commencing with the minimum strength and gradually increasing—immediately blood reappears in the urine. In this way hematuria, and also the growth, may be permanently controlled, and the patient may live in comfort for many years.

The treatment at the start may occasionally increase the hemorrhage, but after several applications the blood lessens in quantity and finally disappears. In a few cases it never entirely ceases throughout the treatment, and is especially noticeable in small quantities at the time of catheterization, though every precaution may have been taken to introduce the instrument with care. It is apparently caused by the catheter damaging a growth situated near the neck of the bladder. In such a case, when the treatment is discontinued the hemorrhage ceases, and the after-effect may be quite satisfactory.

During the treatment shreds of tumor may often be found in the urine, differing very much from the characteristic papilloma. To the unaided eye the firm, pinkish, semitransparent tissue, composed of numerous rounded villi, has given place to a soft, white, opaque, and irregular mass. Microscopically the dis-

tinct villi, composed of easily distinguished translucent cells, arranged in irregular layers around the central blood-vessels filled with corpuscles, have disappeared, and it is difficult to make out either villi or cells; the cell substance is cloudy and granular, and the blood-vessels have shrunk, effects produced doubtless by the continued local applications.

SOME EXPERIMENTS ON THE CURE OF ANTHRAX.

SMITH and GUNN (*Australasian Medical Gazette*, Aug. 21, 1899) prove experimentally that sheep can be cured eight hours after the injection of a dose of virulent anthrax sufficient under ordinary circumstances to kill the animal within thirty hours. It follows that if one of the animals more susceptible to this disease can be so successfully treated, we have every reason to believe that said treatment for virulent cases of anthrax in man can be equally successful if injected around the seat of infection of wound anthrax, while in cases of general anthrax or in wool-sorters' disease the injection of excessive quantities would materially increase the chances of recovery of a patient.

By an immune sheep the experimenters mean one that has been vaccinated against anthrax, and the immunity of which has been subsequently proven by its perfect resistance to the injection of the virulent germ. Minimum doses required for sheep are 40 cubic centimeters if used four hours after the injection of 0.1 cubic centimeter of a cultivation of virulent anthrax, or 150 cubic centimeters if used six hours afterward, and 250 cubic centimeters if used eight hours afterward.

If the initial dose is too small, future injections are of little value. The injection of large quantities of the serum appears to have no ill effect upon the animal.

KERNIG'S SIGN IN MENINGITIS.

HERRICK (*American Journal of the Medical Sciences*, July, 1899) thus describes Kernig's sign: If a patient with meningitis be made to sit up, as on the edge of the bed, the thigh therefore being at a right angle with the body, it is found extremely difficult to extend the leg because of the presence of a marked flexor contracture. To quote Kernig: "The phenomenon is so striking, the difference between nothing and something ('zwischen null und etwas'), between the complete absence of the contracture while the patient is lying down and its presence when the patient sits up, is so plainly perceptible, that it is well worth while to pay especial attention to this symptom and to examine for it in every case."

Kernig saw fifteen cases of meningitis, in all of which he found the symptom. In eight cases there was confirmation of the diagnosis by autopsy. Of the fifteen cases, thirteen were epidemic cerebrospinal meningitis, one tuberculous, one suppurative. Kernig failed to find the sign in many diseases other than meningeal affections. In six cases, however, where there was not acute meningitis, the sign was more or less marked; yet in all these he found some pial trouble—edema, intermeningeal hemorrhage, circumscribed meningitis, chronic meningitis, general carcinosis. Kernig believes the sign appears in meningitis as early as the rigidity of the neck, and that it is late to disappear.

From the study of cases made by Kernig, Bull, Henoch, Friis, Blümm, and Netter, with the observations recorded by Herrick, it seems justifiable to regard Kernig's phenomenon as present in the majority of cases of meningitis—say eighty to ninety per cent—and as only exceptionally present in other affections. Other and more definite conclusions concerning it seem unwarranted at present. That it may occasionally be absent in meningitis and occasionally present in diseases other than meningitis should not cause it to be wholly discarded as of no value. The truly pathognomonic symptoms are few. Rose spots in typhoid, herpes in malaria and pneumonia, absence of free hydrochloric acid in carcinoma of the stomach, murmurs in endocarditis, choked disk in cerebral tumor, and scores of other symptoms, are not pathognomonic, but rightly deserve attention, when found or when absent, as helping to make up or modify the symptom-complex of a disease, the method of diagnosis upon which as yet clinicians are compelled largely to rely.

As to the technique of eliciting this sign, it is exceedingly simple. The patient may be made to sit up on the edge of the bed with the legs hanging down, thus bringing the thighs at right angles to the body, when extension of the leg can be attempted; or the thigh can be brought at right angles to the body as the patient lies in bed on the side, or preferably on the back, and the leg then extended. The only requirement seems to be that the thigh should be placed at a right angle with the body before the attempt is

made to extend the leg. Not infrequently in delirious patients—*e. g.*, in delirium tremens—a little patient, gentle force must be used before the jerking and tense muscles yield. The same is true of some spastic conditions. But where Kernig's contracture is present patience and gentleness do not cause the muscles to yield, and the back of the patient can generally be lifted from the bed without the knees giving way. This procedure is often accompanied by evident pain to the patient. In some cases the leg and thigh will make an obtuse angle of no more than 110° or 120°. As Kernig says, the test in many cases is most striking, particularly in those patients where thigh and leg in the recumbent position are extended and apparently lifeless, but in the test position reveal a most intensely rigid contracture, often with evidence of acute pain. In testing for Kernig's sign there must be excluded those cases in which local causes could interfere with the proper extension of the leg, such as rheumatic or other form of arthritis of the hip or knee, myositis, old contractures from nervous diseases, and sciatica. The phenomenon can be well imitated by the latter condition.

OPERATION FOR PERFORATION IN TYPHOID FEVER.

RYAN (*Australasian Medical Gazette*) operated on a farmer thirty-eight years old, who had been ill in bed with typhoid fever for eight days. The patient suddenly experienced agonizing abdominal pain, followed by a drop in temperature to 98.2° F., shortly rising to 100.8° F. The abdomen rapidly became distended. He was operated on two and one-half hours from the onset of the pain. There were flakes of lymph adherent to the intestines, and the pelvis contained about a pint of offensive fluid. A small opening was found eighteen inches from the cæcum, which was closed, and the whole of the pelvis and abdominal cavity was thoroughly irrigated with hot sterilized water. The wound was closed without drainage. The patient died in thirty-six hours of septic pneumonia, due to inspiration of vomited matter.

A CASE OF PUERPERAL SEPTICEMIA TREATED WITH ANTISTREPTOCOCCIC SERUM.

HAMILTON (*Australasian Medical Gazette*, Aug. 21, 1899) calls attention to the fact that the use of antistreptococcic serum in no way dispenses with the necessity for local treatment, as probably in all cases of puerperal septicemia there is a mixed infection, and other organisms beside the streptococcus pyogenes are present in the uterus and capable of causing a fatal toxemia if their growth is not prevented.

In her first attack this patient was treated by curettage and irrigation with antiseptic solutions. She was confined to the hospital for nine weeks, but finally recovered. Two years later she had a similar attack of about the same severity. The treatment practically was the same as before, except that eighty cubic centimeters of the Pasteur antistreptococcic serum was injected. Each injection of serum was marked by a decided fall in temperature and pulse. This last attack confined her to her bed for three weeks and was not attended by complications.

The author states he has used this serum in two or three other cases, but never with such marked effect as with this particular patient.

Reviews.

GENERAL PATHOLOGY. By Dr. Ernst Ziegler. Translated from the Ninth Revised Edition, and Edited by Dr. Albert H. Buck.
New York: William Wood & Company, 1899.

The title-page and author's preface of this volume are somewhat puzzling. On the title-page it is noted that the book is published in 1899, yet Dr. R. Mead Bolton is named as one of the translators and as living in Philadelphia, although he has been away from this city for several years, and we believe is at present teaching in St. Louis. Further than this, the date of the author's preface of the ninth German edition is November, 1897, almost two years back.

Ziegler's Pathology is a too well known book to make a review necessary. It has been and will continue to be one of the standard works upon this important subject, and while, so far as we understand it, neither the translators nor the editor have attempted to alter or add to the text, the work has been done so well that none of the disadvantages of a translation are manifest in the volume before us. Taking it all in all, the illustrations are also good for a book of this character, although we think they might be better. Figure 393, which is meant to show a gelatin plate containing colonies of small bacilli, is practically entirely useless in the copy which is before us. It is in the text

that we find the chief value of the work, and those who know Ziegler's Pathology appreciate its value, while those who do not ought to show their appreciation by buying it, thereby obtaining a large amount of most useful information.

A COMPEND OF THE PRACTICE OF MEDICINE. By Daniel E. Hughes, M.D. Sixth Edition, Thoroughly Revised and Enlarged.
Philadelphia: P. Blakiston, Son & Co., 1899.

Dr. Hughes's book on practice is a small octavo of a little over 600 pages, bound in a good flexible cover and printed in rather small type, which however is of a character which can be easily read. The fact that it has reached the sixth edition within comparatively a few years after it was published shows that it has proved itself a useful and competent manual, and an examination of the pages of this sixth edition shows why this success is present. Its success depends upon the fact that it is concise, yet not so abbreviated as to leave out important material; that each edition has been well brought up to date—in other words, that it has been really revised by the author; and finally, while the author takes care in many instances to show that the statements are made by others, the book embodies in certain instances his own personal experience, which lends an added charm to the compilation. We do not know of any small book upon practice which we can so highly recommend as this one, and we do not doubt that its popularity will continue.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D. Volume III, September, 1899.
Philadelphia and New York: Lea Brothers & Company, 1899.

This, the third, volume of Progressive Medicine deals with Diseases of the Thorax and its Viscera, including the Heart, Lungs, and Blood-vessels; Diseases of the Skin; Diseases of the Nervous System; and Obstetrics. That upon diseases of the thorax is by Dr. William Ewart, of London, whose article shows that he has made careful research in the literature of medicine during the past year, and has culled from it what he believes to be the most useful practical points which can be utilized by his fellow practitioners. Indeed, we think that the practical character of his article is its chief value, and surely any one who reads it will see, as we have seen, that he has touched upon all the themes which the title of his paper covers.

To the general practitioner the article upon the skin by Dr. Stelwagon may not possess the interest that that of Dr. Ewart possesses; nevertheless, there are many points in which it will prove of value to the active physician, and at the same time it is an able *résumé* of dermatological literature of the past year, prepared by one who in virtue of large experience and long practice is thoroughly qualified to sift the useless from the useful.

The article upon nervous diseases, by Dr. Spiller, is typical of its author, in that it is thorough, carefully prepared, and accurate.

Another department which will prove of very great interest to the general practitioner is that on obstetrics, by Dr. Richard C. Norris, which is one of the best which has been contributed to Progressive Medicine since this work was begun. Not only does it mirror the present status of obstetrics, but it brings home to each practitioner the points which he needs for attending his parturient and puerperal patients.

KIRKE'S HANDBOOK OF PHYSIOLOGY. By W. Morrant Baker, F.R.C.S., and Vincent Dormer Harris, M.D., F.R.C.P. Fifteenth Edition. Revised by Warren Coleman, M.D., and Charles L. Dana, A.M., M.D. Copiously Illustrated.
New York: William Wood & Company, 1899.

Once more this manual of our medical student days appears in a new dress, thoroughly revised and somewhat enlarged by competent hands. At least one of the earlier editions, the thirteenth, was published by the well known house of Blakiston, but the fifteenth appears under the imprint of William Wood & Company.

The copious illustrations, many of which are colored, have always been one of the valuable principles of this singularly successful manual. Other manuals on physiology may come and go, but Kirke's "goes on forever," and its intrinsic merit must be extraordinary that it can survive through all these years the competition of more youthful rivals. The cause of this survival largely depends upon the skilful way with which each revision has been prepared.

A TEXT-BOOK OF PHYSIOLOGY. By Winfield S. Hall, Ph.D., M.D. Copiously Illustrated in Colors and Black.
Philadelphia and New York: Lea Brothers & Company, 1899.

Dr. Hall, who is a graduate both in philosophy and medicine at the University of Leipsic, and who was at one time a student of Carl Ludwig, one of the immortals in

physiology, has prepared this work in a manner highly characteristic of the science of physiology as it exists to-day and of the training which he has received. In some respects the present volume differs from any other book on physiology with which we are acquainted, although the more recent publications on this science have been approaching nearer and nearer to the scheme or plan followed by Dr. Hall. His first chapter is one concerning the physiology of the cell, or cytology, and it is unnecessary for us to state that in the present and future this subject must be of absorbing interest to the physiologist, since it deals so intimately with life. The second chapter is upon the physiology of contractile and irritable tissues. This chapter is of very great interest and is very well written, dealing as it does with the very important changes in the tissues which take place under the circumstances we have named. After this, in Part 2, come chapters in special physiology, including nutrition, the motor sensory activities, and reproduction, and including under nutrition the study of the physiology of the circulation, respiration, digestion, absorption, metabolism, and excretion. Then follow chapters dealing with the skin, the nervous system, the muscular system, and finally chapter 13 deals with reproduction.

One of the things which strike us most forcibly in reading these pages is that while the author has necessarily used a large amount of information from other books, the work is emphatically written by Dr. Hall, and we feel as if he were actually giving us information himself, rather than giving the words of others; and further, one feels confident, not only from the knowledge of his ability as a physiologist, but also from the character of the statements made, that these are physiological *facts*, and therefore can be put away in one's mind as being worthy of credence. We do not know how well the book will suit undergraduate students in medicine in the early years of their study, but certainly, to the student who is in a few months to go up for his final examination in physiology, the book can be cordially recommended, and it is one which all teachers of physiology should possess and carefully read. It is not often that a book which does not deal with practical things in medicine appeals to us in the way in which this one has done. It is one of the books which are placed at our right hand for careful further study and reference.

THE NERVOUS SYSTEM AND ITS CONSTITUENT NEURONES. By Lewellys F. Barker, M.D. Illustrated with Colored Plates and Engravings.
New York: D. Appleton & Co., 1899.

This large octavo volume of over 1100 pages is a monument to the learning and industry of Dr. Barker. In it he has presented the rich results of the more recent studies which have been made into the minute anatomy of the central and peripheral nervous system, and has embodied, in an invaluable manner, the present literature of this important subject, arranging it so consecutively that we pass from chapter to chapter by a series of steps in knowledge which are easily taken because of his lucid manner of writing.

Almost every page contains foot-notes referring to valuable monographs and essays, and in many instances these foot-notes are accompanied by a few words of criticism or explanation, written by the author, which add materially to their value, aside from their being bibliographical references. It should be distinctly understood that this book does not attempt to be a treatise upon diseases of the nervous system; it is emphatically a contribution of the skilled anatomist, who has devoted much time and original work to the elucidation of conflicting theories and the opening up of new fields in modern neurology.

It is to be regretted that all the illustrations are not equally good, though as a rule the faulty ones are those taken from other authors. To those who desire to become thoroughly in touch with the modern views concerning the anatomy of the nervous system in its relation to diagnosis and disease, this book can be recommended with the greatest possible enthusiasm. It is such contributions to the medical literature in this country which will raise our standard in the scientific world abroad better than any other effort we can make save in true original research.

ON THE RÔLE OF INSECTS, ARACHNIDS, MYRIAPODS AS CARRIERS IN THE SPREAD OF BACTERIAL AND PARASITIC DISEASES IN MAN AND ANIMALS. A Critical and Historical Study. By George H. F. Nuttall, M.D., Ph.D.
Baltimore: Johns Hopkins Press, 1899.

This is an essay of over 150 pages devoted to the theme named in its title, and as its title indicates it discusses all those bacterial and parasitic diseases which have been studied by this and preceding investigators, taking up such important diseases on the one hand as

yellow fever and cholera amongst human beings, and on the other hand Texas fever and "Tsetse Fly Disease" amongst animals. A large number of its pages are devoted to the consideration of the "mosquito malarial theory," with which the readers of the THERAPEUTIC GAZETTE are familiar in part by reason of a paper which has been recently published in our columns.

As may be known to some of our readers, Dr. Nuttall has for a number of years been living in Berlin, where he has been a volunteer assistant in the Hygienic Institute, and prior to this he was associate professor in Johns Hopkins University.

An examination of the pages of this brochure shows that Dr. Nuttall has exhausted the literature on the subject, and has presented us with a review of the greatest possible value, not only because of its own worth but also because it appears at a most opportune moment. The volume closes with a copious bibliography of over 350 references.

PRACTICAL ANATOMY. Edited by W. T. Eckley, M.D., and Mrs. Corinne Buford Eckley. Copiously Illustrated, Some of Them in Colors.
Philadelphia: P. Blakiston, Son & Company, 1899.

This is a large octavo of nearly 500 pages, designed as a dissecting manual for Morris's Human Anatomy. In other words, it is Morris's Human Anatomy boiled down, and the boiling down has been very well done. The cuts which illustrate it are mostly taken from Morris's well known work, and therefore it is unnecessary to say anything in regard to their quality, for every one knows how singularly clear and useful they are. The general typographical appearance of the volume is quite identical with that of Morris's book, and to those students who use this Anatomy we believe that this *vade-mecum* will prove very useful. It certainly can be cordially recommended to students and to those practitioners who wish to brush up their anatomical knowledge, and what practitioner of some years does not need to do this?

HANDY BOOK OF MEDICAL PROGRESS. By Charles Warrenne Allen, M.D., and Jacob Sobel, A.B., M.D.
New York: William Wood & Co., 1899.

We confess we are at a loss to understand exactly what function this book is meant to fulfil. It may be described as a sort of small medical dictionary in large type. The various terms are alphabetically arranged, and a definition is given after them; for instance, we learn that Alpha-Eigon is an iodine compound of albumin, twenty per cent, and Alphasol is a proprietary preparation used as an antiseptic for gargles, nasal douches, sprays, etc.; and so on through the book short, abbreviated definitions of various terms are given, not only in connection with drugs but in regard to the names of tests and diseases. To any one who possesses even a small medical dictionary we do not think this book will be of value.

ASTHMA: RECENT DEVELOPMENTS IN ITS TREATMENT. By Ernest Kingscote, M.D., C.M. Illustrated.
London: Henry Glaisher, 1899.

The title of this book does not give a very correct idea of its contents. One would imagine that it dealt entirely with asthma, but as a matter of fact a very considerable portion of its pages deals with disorders of the heart, both functional and organic. It is a monograph prepared by the author, evidently to exploit certain views which he holds in regard to asthma in its relation to circulatory and respiratory conditions, and it closes with a page devoted to "Don'ts in connection with heart disease" and with a "l'envoi," in which the author naively tells us that he does not expect his readers, should there be any, to accept these theories on the subject, though he most fully believes in them, and by a still more naive statement on the last page that the literature of asthma can be found in the Index Catalogue in the Surgeon-General's office.

ILLUSTRATIVE SKIN DISEASES. An Atlas and Textbook, with Special Reference to Modern Diagnosis and the Most Approved Methods of Treatment. By William S. Gottheil, M.D. Portfolios 4, 5, and 6.

We have already reviewed in earlier issues of the THERAPEUTIC GAZETTE the first three portfolios of this very useful atlas of skin diseases. We do not know when we have seen one, in which the illustrations were so good, which could be had at so moderate a price. The colored illustrations are unusually lifelike, and are made by the Photogravure Company of New York.

There is scarcely any department of medical illustration which is so difficult as that of skin diseases, since slight variations in the color entirely change the appearance of the picture. In these the coloring has been unusually well done. Not only is it true that the illustrations are first-rate, but the text is equally valuable, and it is of great value to the physician to find a clear typical picture of a given disease, facing a page upon which careful directions are given for its treatment,

to which directions are added for typical prescriptions which will be found useful in such conditions.

The publication is one which, either in the form of separate portfolios or in a bound volume, which will ultimately be issued when the folios are completed, can be possessed with advantage by any general practitioner or specialist in skin diseases.

DISEASES OF CHILDREN. A Manual for Students and Practitioners. By George M. Tuttle, M.D. Illustrated in Colors and in Black.
Philadelphia and New York: Lea Brothers & Company, 1899.

This small octavo volume of nearly 400 pages belongs to Lea's series of text-books, with many of which the profession is already familiar. It is emphatically a compilation or result of "boiling down" information obtained from larger and standard works, and in the preface we learn that the largest amount of information has been abstracted from the well known treatise of Dr. Holt, of New York, upon Pediatrics.

The various chapters in the book deal with the healthy infant and feeding in infancy; the diseases which are met with in infancy as they affect various portions of the body; and finally there are closing chapters upon Infectious Diseases.

To the student who desires to prepare himself for an examination in the branch of diseases of children, and who has not time to take up and read with care the more extensive text-books, this one can be cordially recommended.

MINOR SURGERY AND BANDAGING. Including the Treatment of Fractures and Dislocations, the Ligation of Arteries, Amputations, Excisions and Resections, Intestinal Anastomosis, Operations upon Nerves and Tendons, Tracheotomy, Intubation of the Larynx, etc. By Henry R. Wharton, M.D. Fourth Edition, Thoroughly Revised and Enlarged, with 502 Illustrations.
Philadelphia and New York: Lea Bros. & Co., 1899.

The favorable reception accorded to Wharton's three previous editions of this book, and the universally commendatory reviews which have appeared in this and practically all journals, instance no more clearly than does this fourth edition of his work the admirable manner in which the art of minor surgery and bandaging has been set forth. The illustrations are particularly well chosen, since in practically all cases they are supplementary to the text, making it more readily understood. The Section upon Surgical Bacteriology, and the Preparation of Materials used in Aseptic Operations, will prove most useful, because of the clearness of the teaching and the orderly manner in which it is set forth. The chapter upon Anesthesia, founded as it is upon a wide experience, should be carefully studied. The addition of articles upon Tracheotomy, Intubation of the Larynx, Ligation of Arteries and Amputations, Resections, Operations upon the Kidney, the Colon, and the Bladder, Gastrotomy, etc., distinctly increases the value of the work, especially to medical students.

A COMPEND OF GYNECOLOGY. By William H. Wells, M.D. With Illustrations. Quiz Compend No. 7.
Philadelphia: P. Blakiston, Son & Company, 1899.

This second edition of Wells's Quiz Compend on Gynecology includes the many excellent features of the first edition, together with a much fuller consideration of the field of operative gynecology. Whatever may be the merits and defects of these small books upon special subjects arranged for the use of students, and particularly, sometimes solely, for the purpose of helping them successfully to pass their examinations, it is evident from the popularity which the best of them have attained that they have proven useful not only to the student but to the general practitioner of medicine. This book of Wells's contains all the good points to be found in works so condensed. It is direct and fairly comprehensive, and as such is to be warmly commended.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

In a recent letter I spoke of the expedition recently sent out by the Liverpool School of Tropical Medicine to investigate the causation of malaria. Their labors have so far met with the utmost success, as may be gathered from the following letter of Mr. Ronald Ross: "We have now practically finished our work here. We have found: (*a*) that local species of Anopheles (mosquitoes) carry malaria; (*b*) that these species breed in a few stagnant puddles. These observations support my inaugural lecture at every point. Needless to say we have been most exceptionally lucky to have done so much in so short a time. We shall, of course, wind up with a scientific report to the committee. The practical results to be derived from the

facts which we have obtained will depend solely on the government and the medical profession here. Fortunately, Major Nathan is taking great interest in our work, and so are the colonial doctors. Of course, we could kill most of the Anopheles grubs here in a few hours with kerosene oil, and the thing will be done shortly after Ould arrives. But this won't be enough. It is necessary that the operations be continued systematically, and that some of the most dangerous puddles be drained (costing a trifle). Consequently the Governor asked us to advise. I suggested that one of his medical officers be put in charge of the operations against the mosquito, and that he be given a trustworthy native assistant. The proposal is before the Governor. For many scientific reasons we have come to the conclusion that the truly malarial fever is solely caused by the mosquito—probably entirely by the Anopheles species. We estimate that most of the malarial fever here can be got rid of at almost no cost, except of a little energy on the part of the local authorities. I am having a look round at the other medical and sanitary matters—drainage, conservancy, etc. You will understand, of course, that it will take some time for the public to get the mosquito theory into their heads, but it will come in time. Many thanks for sending Ould. I propose to show him what to do here, and then send him down the coast. It has been quite impossible for us to go over to Accra. We should have had to start a week ago if we wished to catch the *Fantee* on her return. This would have broken off our work here at the most important point. Dr. Strachan, chief medical officer of Lagos, is hard at work on Anopheles there, and you may be sure that the alarm will be raised all down the coast before long. Ould can show them how to hunt up the puddles. Dr. Van Neck has arrived here.—Yours sincerely, R. Ross." (Reuter.)

Those who take an interest in the detailed work of the expedition should read an admirably lucid letter from a correspondent at Sierra Leone in the *British Medical Journal* of September 30, entitled "Anopheles and its Habits; Malarious Foci Localized."

It is to be hoped that similar success may attend the efforts of the workers in the pathological laboratory of the Malay Peninsula in their investigation into the causes of beriberi. A meed of praise for this work is due not only to the scientific experts, but even more so to the exemplary Colonial Secretary, who has made these investigations practicable.

I would call attention to a very practical article on the "Local Treatment of Puerperal Infection," in which Dr. Arnold Lea analyzes forty-eight cases that had come under his own notice. The details of these cases may be studied in the August number of the *Medical Chronicle*, but it may not be out of place to state briefly the conclusions he derives from these cases: (1) That a rise of temperature above 101.4° occurring during the puerperium without obvious assignable cause should lead to a thorough examination of the genital passages. (2) That if the examination of perineum and vagina gives a negative result, a uterine douche should be given with proper precautions. The various accidents that have attended the employment of the uterine douche may be reduced to a minimum by using only a mild antiseptic and injecting it slowly and without pressure. (3) If within twenty-four hours the temperature has fallen definitely, no further exploration is required, but the douche may be repeated if the temperature again rises. The uterine douche practically can cope with sepsis, the source of which lies in the decomposition of lochia or blood-clots, but not with the products of conception retained *in utero*. (4) If at the end of twenty-four hours the temperature is higher, and the pulse-rate has increased, the cavity of the uterus should be explored with the sterilized finger. (5) If the initial rise of temperature is great (103° or over), with or without a rigor, the uterus should be explored at once, not waiting twenty-four hours to observe the effect of a douche. This is more especially indicated if the uterus is bulky, showing delayed involution, since this points to putrefaction of retained products, or to septic endometritis. (6) If clots or placenta are discovered, they should be removed by the finger or curette, a douche given, and a gauze drain inserted for twenty-four hours. (7) In the great majority of cases it is wiser to thoroughly curette the uterus with the object of removing the whole of the decidua and retained products. (8) There is no evidence that curettage, if done with every precaution, favors the spread of infection. In a large proportion of cases the infection is rapidly checked. (9) In very virulent infection early curetting with the object of sterilizing the uterine cavity affords the best chance of a successful result. (10) If curettage entirely fails, it must be repeated or not, according to the local condition present.

The prognosis, however, in the absence of a definite localization of the infective process is bad. (11) In some cases, if curettage fails, and there is no evidence of general peritonitis or of infection of the blood-stream, vaginal hysterectomy, if performed in good time, may be successful. So far as Dr. Lea's statistics go the benefit of this extremely radical procedure seems to be merely a pious expression of opinion, for it was tried but once and then was ineffectual to prevent death. (12) Antistreptococcic serum should be given early and freely in cases of proved streptococcic infection. It is of little use in the advanced stages of the disease.

Schäfer and Swale Vincent have just completed an interesting series of observations on the physiological effects of extracts of the pituitary body. A full account of their observations may be read in the September number of the *Journal of Physiology*. They find that pituitary extracts when injected into the venous circulation may produce either a marked rise or marked fall of blood-pressure, varying with the nature of the extract. In other words, it contains two active principles, which may be conveniently termed *pressor* and *depressor*, to emphasize the contrary effects they produce. The pressor substance is soluble in salt solution and insoluble in absolute alcohol and ether; the depressor substance is soluble in salt solution, in absolute alcohol, and in ether. Neither of the active principles is destroyed by boiling, and each is dialyzable. They confirm Schäfer and Oliver's previous observations that the pressor substance produces its action both upon the heart and peripheral arteries, and that its action is a prolonged one, and Howell's observation that during the period of its action a second dose is inactive or nearly so. On the other hand, the action of the depressor substance is evanescent and can be repeated at short intervals. They find also that the rise of blood-pressure due to the pressor substance may be accompanied by slowing of the heart; this they attribute mainly to the contraction of arterioles and rise of aortic pressure, but in part also to direct action upon the peripheral cardiac mechanism. They also confirm Howell's finding, that the active substances are contained only in the infundibular and not in the hypophysial part of the pituitary body. Subcutaneous injection of the extracts in small animals caused paralytic symptoms similar to those obtained by injecting suprarenal extracts. They also confirm Howell's observation that the characteristic effects are not due to the gray nervous matter of which the infundibular portion is largely composed. It seemed likely that the fall of blood-pressure was due to choline in the extract, which is a known derivative of gray nervous substance; but that this was not the case was shown by the fact that the fall was not affected by administration of atropine, which directly antagonizes the action of choline. They conclude that the depressor action of choline is exerted through the cardio-inhibitory mechanism, whereas that of pituitary extract is a peripheral action upon the musculature of the vascular system.

At the recent meeting of the British Medical Association Dr. Hinshelwood, of Glasgow, made an important communication on the use of euphthalmine as a mydriatic. He uses a five-per-cent aqueous solution of euphthalmine, and finds its rapidity in dilating the pupil almost equal to that of a one-per-cent solution of homatropine; but by previously instilling into the eye a single drop of a one-per-cent solution of holocaine, the euphthalmine solution acts quite as rapidly as homatropine, producing a maximum dilatation of the pupil in about twenty minutes. Moreover, the dilatation of the pupil produced by euphthalmine passes off more readily than that produced by homatropine. Dr. Hinshelwood has also established the point that has been contested by some ophthalmologists, that euphthalmine has some slight paralyzing effect on accommodation; but in this lies its great merit in practical usefulness, that the paresis of accommodation passes away completely in from an hour and a half to two hours from its first instillation. Euphthalmine causes no smarting and no discomfort of the eyeballs; it has no apparent effect on the conjunctival vessels or corneal epithelium; it does not raise the tension of the eye, and produces no toxic effects.

In connection with the pathological laboratory in Malay for the investigation of beriberi, to which I alluded in the earlier part of this letter, it may interest you to learn that Dr. Hamilton Wright, formerly pathologist to the Royal Victoria Hospital, Montreal, will be director. The Government of the Straits Settlement has announced that it will be glad to assist research scholars who take part in the investigation by providing them with furnished quarters, rent free, by giving them the free run of the hospitals and laboratory, by defraying the cost of passage to the Colony, and in such other ways as may

meet the needs of individual cases. I presume the invitation is extended to Americans as much as to Englishmen.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

At the Congress of Obstetrics and Gynecology held at Amsterdam from August 8 to 12, the celebrated French accoucheur, Professor Pinard, compared the value of the three operations for contracted pelvis—symphyseotomy, Cæsarian section, and craniotomy. Dr. Pinard said that Cæsarian section was certainly theoretically an ideal operation, hemorrhage and infection having been reduced to a minimum. The speaker then analyzed the statistics of Olshausen, Leopold, and Zweifel, which are as follows:

Olshausen: 29 operations, 27 recoveries, 2 deaths; 3 infants died.

Leopold: 100 operations, 90 recoveries, 10 deaths; 13 infants died.

Zweifel: 55 operations, 1 death.

Leopold has laid down the conditions necessary for undertaking this operation with success. The woman should have energetic contractions, and she should be in good health; there must be no trace of infection, gonorrheal or otherwise; and lastly, the bag of waters should be intact. When all these do not exist, Leopold has recommended either Porro's operation or basiotripsy. The same applies to cases where asepsis cannot be guaranteed.

Dr. Pinard added that the foregoing results were those obtained by very experienced operators, where they were able to operate on certain selected cases. He then went on to give the results of symphyseotomy such as it has been done since 1893 at the Clinique Baudelocque. From February 4, 1892, to January 20, 1899, a hundred symphyseotomies had been performed by Varnier, Potocki, Lepage, Wallich, Bouffe de St. Blaisé, Baudron, Funck-Brentano, and Dr. Pinard. There had been in all twelve deaths, and from this number should be subtracted the following cases: intestinal obstruction, infectious influenza, pneumonia, eclampsia, and three cases of infection having no connection with the operation. The mortality in all cases was therefore only five per cent. Thirteen children died, and seven cases were due to applications of forceps before symphyseotomy, to an incomplete symphyseotomy, and to accidental bronchial pneumonia, which would make six per cent. An important point in Dr. Pinard's communication was that twenty-two women already symphyseotomized came into the service a second time. In only six cases was a second symphyseotomy found necessary.

From 1882 to 1899 craniotomy was performed eighty-one times in Dr. Pinard's service at the Clinique Baudelocque, or at the Lariboisière Hospital, and the mortality was 11.5 per cent.

Lastly, premature birth was induced in one hundred cases, and there was only one death. As for the children, only sixty-seven survived.

Dr. Pinard concluded his report by saying that he considered an accoucheur should be primarily a physician, and therefore do all he can to safeguard the lives of both mother and child. He denounced induced labor on account of its heavy infantile mortality; on the other hand he did not believe it right to discuss the relative value of the mother's life or the child's. Moreover, a physician should prefer a relatively complicated operation with a sure result to an easy one with a doubtful result. Dr. Pinard said the degree of contraction of the pelvis is not of so much importance as is the question of its relation to the dimensions of the child's head. When the contraction is very considerable, Cæsarian section should be carried out. Above 6.5 centimeters symphyseotomy is, according to Dr. Pinard, the best operation, when the woman is not infected. As to what one should do when she is already infected, the experience acquired so far is not sufficient to justify one in deciding positively for one or the other operation.

Dr. Pinard concluded with the following words: "These things should be suppressed in the therapeutics of pelvic contraction: (1) Induced labor; (2) forceps or version when there is some osseous obstacle; (3) embryotomy on a living child. During labor two things should be avoided: (1) Tedious labor; (2) infection. The operations to be carried out are: (1) Symphyseotomy, pubiotomy, ischio-pubiotomy, coccygotomy; (2) Cæsarian section, with or without hysterectomy; (3) embryotomy on a dead child.

In a recent number of the *Belgian Medical Press* Dr. Siegrist, of Zurich, described his method of treating an acute attack of sciatica. The patient is placed on his side so that the region affected is quite uncovered, and on the latter a cloth dipped in hot water (50° to 60° C.) and slightly wrung out is placed, and covered over with a piece of flannel and

of more than one meter of the small intestine; seventeen survived the operation, five of whom suffered from digestive troubles; in all the other twelve the digestive functions were uninjured, but in ten the resected intestine measured less than two meters. There have been only six cases of the resection of more than two meters of the lesser bowel: 205 centimeters (Kaoberle); 209 centimeters (Kocher); 215 centimeters ileum (Dreesman); 234 centimeters ileum (Shephard); 310 centimeters ileum (Fantino); and the most extensive, 330 centimeters of small intestine (Ruggi) in a boy of eight for circumscribed peritonitis. Only two of these patients escaped with the digestive function unimpaired, namely, the first (205 centimeters) and the last (330 centimeters). Dreesman concluded that resections of less than two meters could be borne with impunity when there were no complications, but only young people could support a loss of greater length without the digestion being impaired.

AN EFFECTIVE TREATMENT OF VESICAL HEMORRHAGE WHEN CAUSED BY PAPILLOMATOUS GROWTHS.

HERRING (*British Medical Journal*, July 29, 1899), following the method practiced by Sir Henry Thompson, is able to report a number of cures by injection of silver nitrate solutions. The diagnosis of the cases was invariably confirmed by removing a portion of the tumor and submitting it to microscopic examination. Such specimens are usually obtained by washing out the bladder freely with warm sterile water, examining the débris brought away for shreds of tissue, and mounting them at once.

The instruments used are a soft, slightly elbowed catheter with the eye situated near the end, and a four-ounce india-rubber bottle furnished with a brass taper nozzle and stopcock, together with a standard solution of one grain of nitrate of silver to one drachm of distilled water, acidulated with a small quantity of free nitric acid.

The injections are commenced by adding half a drachm of the standard solution to four ounces of warm water, and the strength is gradually increased every day or two until one or even sometimes two drachms has been added. The strength should be so regulated that no pain, increased frequency of micturition, or straining will follow the injection. Occasionally, when the maximum strength has been in daily use for a considerable time, the bladder becomes irritable, and the strength should be reduced, but the treatment should not be stopped.

As soon as the patient has learned to inject himself efficiently—throwing into the bladder half the contents of the bottle, retaining the solution for a few seconds and then letting it run off, and repeating the same process with the second half—he should do it daily; at night, perhaps, is the best time, for it is always advisable to rest afterwards. Before a patient can be trusted to make the injection himself, it is necessary to give him a few lessons in a uniform and systematic way of doing it, so as to insure perfect aseptic conditions, absence of injury or irritation to the organs, and the desired effect of the nitrate in the bladder. He should continue this without intermission for four, five, or six months, reaching his maximum strength of solution some five, six, or more weeks from the commencement of the treatment. If then bleeding has ceased, as it should have done, he may inject every other day for six months longer, and afterwards every third day for a variable period. A patient having been subjected to this long course of treatment may discontinue the application, even for a year, without any symptoms recurring; but he should return to daily injections—commencing with the minimum strength and gradually increasing—immediately blood reappears in the urine. In this way hematuria, and also the growth, may be permanently controlled, and the patient may live in comfort for many years.

The treatment at the start may occasionally increase the hemorrhage, but after several applications the blood lessens in quantity and finally disappears. In a few cases it never entirely ceases throughout the treatment, and is especially noticeable in small quantities at the time of catheterization, though every precaution may have been taken to introduce the instrument with care. It is apparently caused by the catheter damaging a growth situated near the neck of the bladder. In such a case, when the treatment is discontinued the hemorrhage ceases, and the after-effect may be quite satisfactory.

During the treatment shreds of tumor may often be found in the urine, differing very much from the characteristic papilloma. To the unaided eye the firm, pinkish, semitransparent tissue, composed of numerous rounded villi, has given place to a soft, white, opaque, and irregular mass. Microscopically the dis-

tinct villi, composed of easily distinguished translucent cells, arranged in irregular layers around the central blood-vessels filled with corpuscles, have disappeared, and it is difficult to make out either villi or cells; the cell substance is cloudy and granular, and the blood-vessels have shrunk, effects produced doubtless by the continued local applications.

SOME EXPERIMENTS ON THE CURE OF ANTHRAX.

SMITH and GUNN (*Australasian Medical Gazette*, Aug. 21, 1899) prove experimentally that sheep can be cured eight hours after the injection of a dose of virulent anthrax sufficient under ordinary circumstances to kill the animal within thirty hours. It follows that if one of the animals more susceptible to this disease can be so successfully treated, we have every reason to believe that said treatment for virulent cases of anthrax in man can be equally successful if injected around the seat of infection of wound anthrax, while in cases of general anthrax or in wool-sorters' disease the injection of excessive quantities would materially increase the chances of recovery of a patient.

By an immune sheep the experimenters mean one that has been vaccinated against anthrax, and the immunity of which has been subsequently proven by its perfect resistance to the injection of the virulent germ. Minimum doses required for sheep are 40 cubic centimeters if used four hours after the injection of 0.1 cubic centimeter of a cultivation of virulent anthrax, or 150 cubic centimeters if used six hours afterward, and 250 cubic centimeters if used eight hours afterward.

If the initial dose is too small, future injections are of little value. The injection of large quantities of the serum appears to have no ill effect upon the animal.

KERNIG'S SIGN IN MENINGITIS.

HERRICK (*American Journal of the Medical Sciences*, July, 1899) thus describes Kernig's sign: If a patient with meningitis be made to sit up, as on the edge of the bed, the thigh therefore being at a right angle with the body, it is found extremely difficult to extend the leg because of the presence of a marked flexor contracture. To quote Kernig: "The phenomenon is so striking, the difference between nothing and something ('zwischen null und etwas'), between the complete absence of the contracture while the patient is lying down and its presence when the patient sits up, is so plainly perceptible, that it is well worth while to pay especial attention to this symptom and to examine for it in every case."

Kernig saw fifteen cases of meningitis, in all of which he found the symptom. In eight cases there was confirmation of the diagnosis by autopsy. Of the fifteen cases, thirteen were epidemic cerebrospinal meningitis, one tuberculous, one suppurative. Kernig failed to find the sign in many diseases other than meningeal affections. In six cases, however, where there was not acute meningitis, the sign was more or less marked; yet in all these he found some pial trouble—edema, intermeningeal hemorrhage, circumscribed meningitis, chronic meningitis, general carcinosis. Kernig believes the sign appears in meningitis as early as the rigidity of the neck, and that it is late to disappear.

From the study of cases made by Kernig, Bull, Henoch, Friis, Blümm, and Netter, with the observations recorded by Herrick, it seems justifiable to regard Kernig's phenomenon as present in the majority of cases of meningitis—say eighty to ninety per cent—and as only exceptionally present in other affections. Other and more definite conclusions concerning it seem unwarranted at present. That it may occasionally be absent in meningitis and occasionally present in diseases other than meningitis should not cause it to be wholly discarded as of no value. The truly pathognomonic symptoms are few. Rose spots in typhoid, herpes in malaria and pneumonia, absence of free hydrochloric acid in carcinoma of the stomach, murmurs in endocarditis, choked disk in cerebral tumor, and scores of other symptoms, are not pathognomonic, but rightly deserve attention, when found or when absent, as helping to make up or modify the symptom-complex of a disease, the method of diagnosis upon which as yet clinicians are compelled largely to rely.

As to the technique of eliciting this sign, it is exceedingly simple. The patient may be made to sit up on the edge of the bed with the legs hanging down, thus bringing the thighs at right angles to the body, when extension of the leg can be attempted; or the thigh can be brought at right angles to the body as the patient lies in bed on the side, or preferably on the back, and the leg then extended. The only requirement seems to be that the thigh should be placed at a right angle with the body before the attempt is

of these poisons in the body of the mother and in removing them before she has eclampsia. The comparative mortality of preventive treatment and of directly curative treatment in eclampsia has never been stated in absolute figures. Among women subjected to no care during pregnancy, recent observers estimate that one in eighty-five has eclampsia; others place the number at one to one hundred; still others consider eclampsia more frequent. It is most common in primiparæ, above the first years of child-bearing, and in patients with multiple pregnancy. The mortality in eclampsia is recently placed at twenty-four per cent; it varies from fifteen to twenty-five per cent in different statistics. The percentage of success obtained in preventing eclampsia may be estimated from the fact that during the last six years I have had under observation 1566 patients, each of whom was observed in a routine manner to determine the perfection of excretion. Of these patients, three had eclampsia. In neither case were convulsions severe, and in each mother and child recovered.

It is well first to consider in what way can be made the diagnosis of the accumulation of poisons commonly known as toxemia. It is generally thought that the examination of the urine is the most important factor in this diagnosis, and many regard it as the only examination necessary. This is, unfortunately, not correct, for some dangerous cases of eclampsia show little signs of approaching danger in altered urine. We can, however, obtain much valuable information from this source, and this examination is always an important one. We seek in this respect knowledge concerning two particulars: first, the presence or absence of solids; secondly, the presence or absence of kidney débris. Serum albumin is important only when in large amount and appearing with kidney débris. To estimate the solid waste, we ascertain the percentage of urea and compute the percentage of solids from the specific gravity of the urine, or make a special examination for this purpose. Urea is not in itself a poison, but indicates the perfection of the formation of solid waste in the body and its excretion. The percentage of urea may be conveniently and accurately estimated by any one of several forms of apparatus in the market. In my experience, Squibb's has served a useful purpose. To estimate the amount of solid matter in a given specimen of urine, one of several rules may be followed: the coefficient 2.33 may be used, and the last two figures of the specific gravity multiplied by this, which gives approximately the number of grammes of solid matter in one thousand cubic centimeters of urine. Haines's method may be employed, which consists in multiplying the last two figures of the specific gravity of the urine by the number of ounces voided in twenty-four hours, and this product by 1.1. The difficulty in estimating accurately the amount of solid matter excreted in the urine arises largely in the fact that it is difficult to obtain an accurate record of the amount passed. An idea of the result desired which is fairly accurate is obtained from the specific gravity and the percentage of urea. In all doubtful cases the amount should be accurately measured.

The use of the centrifuge enables kidney débris to be recognized almost immediately and with little difficulty. We have in these two procedures—namely, the computation of solids and the recognition of kidney débris—the most important methods of diagnosticating normal or abnormal excretion during pregnancy. Any well known method may be employed to detect the presence or absence of serum albumin. It must be remembered, however, that this substance is of clinical importance only when in excess and when accompanied by kidney débris.

While our examination of the urine may be conducted with reasonable scientific accuracy, the most important method of diagnosis in these cases consists in the clinical phenomena which the patient presents. Headache across the brow, melancholia, stupor, variations in appetite, lack of proper secretion in the skin, and constipation, are all symptoms recognized by a careful clinical observer without the employment of scientific apparatus. It is a frequent observation in my experience that many of the so-called disorders of early pregnancy characterized by the symptoms just described yield promptly to treatment addressed to stimulating the patient's excretion. An appropriate diet, composed largely of milk, bread and butter, green vegetables and fruit, with an abundance of pure and soft water, is the first important prerequisite. The skin must be kept active by a warm tub-bath at night, and a cool sponge in the morning. Thin wool or silk and wool should cover the entire surface of the body from the neck to the feet. Abundant fresh air, the entire absence of all constriction of the abdominal viscera, and gentle exercise, such as walking at a leisurely pace

upon level ground, or light domestic work in well ventilated rooms, are all of importance.

The use of drugs in these cases should be adapted first to the maintenance of the regular action of the bowels, and secondly, to the promotion of the elimination of waste. If habitual but simple constipation be present, cascara may be used to advantage. A teaspoonful of aromatic cascara should be taken night and morning until the bowels move several times during twenty-four hours. The dose may then be lessened until at least one copious movement daily is secured. Few pregnant patients escape the impaction of feces, and should the slightest suspicion exist of this condition, a vigorous purge should be administered and cascara then employed. Two or three compound cathartic pills at night, followed by a saline and copious enema on the following morning, will partially clear the bowel. An agreeable saline each morning for a week following will assist in unloading the intestine, when the regular use of cascara will usually keep the bowels free. Should this means not be successful, lavage of the intestine should be practiced by a trained nurse. With the patient upon her left side, a soft rectal tube should be inserted as far as possible, and one ounce of ox-gall dissolved in one quart of warm soap-suds should be gently introduced into the bowel as high as possible. An hour after this, with the patient in the same posture, a copious irrigation of warm Castile soap-suds, or of warm water containing one ounce of magnesium sulphate to the pint, may be employed. By this means the large bowel can be efficiently emptied.

The treatment of simple constipation is rarely sufficient in these cases. It will be found that not only the intestine but the liver and kidneys are at fault. There is in my experience no drug so valuable as calomel in these patients, provided proper caution be exercised in its use. One-fourth grain of calomel with bicarbonate of soda may be given night and morning for several days, citrate of magnesia or other agreeable saline being employed on each following morning. The result of this administration is usually better than the giving of a single and larger dose. When, however, it is necessary to drain the intestine persistently to relieve the deficient action of the liver and kidneys, the compound colocynth pill of the Pharmacopœia may be employed to advantage. From one to three of these pills taken at night result well.

It is possible to greatly increase excretion by the proper use of water. Pregnant patients, who suffer greatly from heartburn, find comfort in the free use of water charged with carbonic acid gas. The so-called sparkling saline waters agree well with these patients. Célestin Vichy, if taken cool, can usually be freely employed. If the patient does not wish to go to the expense of using an imported water, plain soda-water in which is dissolved one of the effervescent salts now upon the market may be employed to advantage. The potassium salts must be avoided in these cases, and other salines used instead.

The injurious effect of the alkaloids in common use has been frequently observed with these patients. Tea and coffee employed in excess greatly lessen the excretion of the pregnant woman. It is necessary in all cases where these substances have been habitually and excessively used to cut off their employment as soon as possible. Alcohol should not be taken by these patients in any form. The craving for tea or coffee may usually be appeased by the use of very hot water, effervescent drinks, and occasionally, for a short time, small doses of nux vomica or strychnine.

Success in the prevention of eclampsia is usually obtained under treatment which, while tedious at times to the patient, is rarely such as to interfere with her comfort. In fact, the prompt relief which she experiences from general malaise is most gratifying. In the presence, however, of eclamptic convulsions, when by the use of the remedies already described at the beginning of this paper we have temporarily subdued the fits, the very important question arises, What shall we do to prevent their recurrence?

It is commonly believed that the patient dies because of the eclamptic fits. If this is true, then the woman having the smallest number of fits should recover the most promptly. This is not the case, for some patients survive a comparatively large number of fits, while others perish after two or three. Our treatment must be addressed not so much to controlling the paroxysms as to establishing in the quickest possible manner very free excretion. This will end the paroxysms by removing the cause, and give the patient the best chance for recovery. It is a common observation that immediately after labor the kidneys of the patient act more freely than formerly, perspiration commonly occurs, vasomotor tension is much relaxed,

the nervous system enters a period of quiet, and the conditions seem favorable for free secretion and excretion. Reasoning from this, physicians have supposed that the first duty in eclampsia was to immediately empty the uterus, and thus bring the patient into that condition most favorable for the resumption of secretory functions. It has been shown that the uterus and its contents do not entirely control eclampsia. A patient has had eclamptic fits after the entire uterus and contents had been removed. Postpartum eclampsia is not a very rare occurrence. A patient may show no sign of this disorder until twelve hours after the birth of her child, as in a case recently observed, in which the first indication of danger occurred at midnight, when a patient delivered on the morning previous suddenly fell out of her bed in a violent eclamptic convulsion.

While it cannot be denied that emptying the womb is a favorable thing for the patient, still it is not sufficient. It is, however, necessary to remove all reflex irritation of the central nervous system originating in the uterus. Thus, if the membranes are tense, they should be ruptured, and intra-uterine tension thus relaxed. If the womb is acting and the patient is endeavoring to expel the child, labor should be hastened by every possible means. If the os and cervix are not dilated, but the womb is active and dilatation is abnormally slow, it should be furthered by manual dilatation, by the use of elastic bags, or by incising the cervix. If, however, the patient is in a comparatively early period of gestation, the womb entirely quiescent, the child's movements not excessively violent, the rapid emptying of the uterus will do the patient no immediate good, but will add the shock of operation to the burden under which she is laboring.

The ideal method of emptying the womb in eclampsia would be the Cæsarian operation. This has been performed in a number of cases, and on one occasion I delivered a dead child by this method and was surprised to observe the great improvement in the mother's condition. She perished some days later, and autopsy showed highly advanced disease of the kidneys and liver.

An interesting case of Cæsarian section for eclampsia is recently reported by Hillman,* who saved the mother, the child perishing. He collected forty cases in which this operation was performed. Twenty-one of the mothers perished, nineteen recovered. One of the cases was that of twins, and of the forty-one children, eighteen perished and twenty-three survived. In seven of these patients eclampsia recurred after the operation. This operation is admissible in eclampsia only when the cervix is tightly closed, when efforts at elimination promptly pushed and closely watched meet with no response, and when edema of the lungs has not supervened. The performance of post-mortem Cæsarian section in eclampsia may be rendered unsuccessful, in my experience, by the death of the fetus from the poisons which destroyed the life of the mother. In this instance the child, though robust, perished two weeks after birth from interstitial nephritis and lesions of the liver.

To secure prompt elimination in eclamptic patients, as many organs as possible must be roused to activity by the most direct and efficient agents. The patient should be placed in a complete hot moist pack. If she is conscious, she should swallow five grains of calomel and ten grains of bicarbonate of sodium. The large intestine should be thoroughly douched with warm soap-suds, followed by a copious irrigation with from one to three gallons of normal salt solution. A soft rectal tube should be introduced as high as possible, and the flushing should be as thorough as possible. By separating the patient's limbs, wrapping each in separate blankets, the pack may be continued while the intestinal irrigation is going on. The application of cold to the head and the prompt use of chloroform should a convulsion begin will control restlessness and the eclamptic fits. If the patient be unconscious, the stomach should be washed out thoroughly and the calomel and soda introduced through the stomach-tube.

The question of bleeding in eclampsia has occasioned wide discussion. Theoretically, to remove a large amount of poisoned blood, to lessen the tension of the pulse, and to secure the quiet which follows bleeding in many other conditions, would seem an ideal result. Practically, however, the amount of blood which can be drawn does not remove a large quantity of poisonous material, while the ordeal of labor which is still before the patient in many cases is better met with the full amount of blood than with a lessened supply. Attention has recently been drawn

* *Monatsschrift f. Geburtshülfe und Gynaekologie*, Band 10, Heft 2, 1899.

to the advisability of bleeding, followed by intravenous transfusion of normal salt solution. This has not yet given brilliant results, but in view of the prompt stimulating effect of intravenous transfusion it is justifiable and should meet with a more extended trial. Those who do not believe in so radical a procedure agree with me that the prompt introduction of large quantities of normal saline solution by hypodermoclysis is followed by the best results.

At the present day the balance of opinion is distinctly against the use of pilocarpine, of large doses of morphine, and of large doses of chloral and potassium bromide, in the treatment of eclampsia. There is, however, a considerable mass of evidence to show that, in the absence of bleeding, veratrum viride by hypodermic use lessens the pulse-rate and arterial tension, promotes relaxation of the neck of the womb, and assists in controlling the patient. I should say then that, in cases where bleeding was not practiced, hypodermoclysis and the use of veratrum viride would accomplish less promptly the same result. Whether the one method is much better than the other at the present time remains to be proven.

The use of the methods described should be continued as constantly as possible until the intestines have been emptied, the secretion of urine has begun, the patient has sweat freely, and labor has shown a tendency to begin or to remain entirely quiescent. Injections of salines and glycerin into the bowels, or of oil and soap-suds, may be thoroughly used to bring about the emptying of the intestines. It may be necessary to employ croton oil, placing two or three drops in a teaspoonful of sweet oil far back upon the patient's tongue. The pack should be repeated as often as necessary, and a thorough and vigorous effort made to secure elimination. After the intestine has been emptied, it must be remembered that the patient will be in need of stimulation. Rectal injections of peptonized milk and whiskey, or of freshly made hot coffee well diluted, may be employed. Digitalis may be used by hypodermic injection, and the action of the heart sustained in that manner. In favorable cases labor will have declared itself and the physician should proceed by dilating the womb and promptly removing the fetus and its appendages. This is usually followed by the cessation of convulsions and the gradual establishment of consciousness and free secretion. In desperate cases, when elimination cannot be started, when labor does not begin, there is but one recourse left, and that is to empty the womb in the quickest possible manner and to continue the effort to start elimination while stimulating the patient. Here the choice of a method of delivery will be decided by the experience of the operator, and the facilities under his control. In a well appointed hospital, under aseptic precautions, the womb could be most quickly emptied by the Cæsarian operation. In a private house with but limited facilities a rapid manual dilatation of the womb or the incision of the cervix as practiced by Dührssen, followed by version or the use of forceps, will suffice. As soon as labor is over the physician must return to his efforts to secure elimination and to sustain the patient's strength by appropriate stimuli. In the period after labor in which the patient has begun to eliminate slightly, but is still restless and semi-delirious, morphine or codeine fills a useful place. Should heart action be feeble, and the tone of the vessels deficient, morphine may be used with atropine, and in alternate doses strychnine may be injected. Rectal stimulation and the free use of water as soon as the patient can swallow will usually tide her over the reaction from labor.

The child born of an eclamptic mother must be carefully watched. If premature, it should be placed in an incubator, the intestine thoroughly douched with warm slightly alkaline water once daily. Care should be taken to avoid chilling the child in any way, and it should be given as much water as it will take. It should not nurse from the mother for ten days after her recovery from eclampsia. If healthy breast milk is available, this may be diluted one-half with warm sterile water and dropped into the mouth by a medicine dropper. If such is not available, pancreatized diluted cow's milk may be employed.

The very interesting question of prognosis naturally arises: What determines the successful or unsuccessful issue of a case of eclampsia? In reply, it is my belief that the fate of many an eclamptic woman is decided before the first fit. The extent and duration of the degeneration of the kidney and liver epithelia determine the possibility of the patient to secrete and to free herself from poisons. If the toxemia has not been long continued and the patient is naturally a person of sound tissues, her recovery will depend upon the promptness and vigor of her treatment, and most of all upon its early application. If, on the other hand, the tox-

emia has been long continued, the patient is a woman who has borne many children and is debilitated from other causes, or if she is a primipara above the average age, her chance for recovery is exceedingly bad. The attention of physicians should be directed first of all to the paramount importance of diagnosticating and treating toxemia, and secondly, to the fact that if eclampsia occurs, and the physician cannot at once apply in a vigorous manner the best methods of treatment, he should instantly summon the proper assistance or send his patient where she can obtain it. In the presence of eclampsia no one is justified in giving a few experimental doses, or in waiting to observe the action of any particular remedy. As much as possible must be done for the patient, and that at once.

THE TREATMENT OF ECLAMPSIA.

By James Clifton Edgar, M.D.,
Professor of Obstetrics and Clinical Midwifery in Cornell University Medical College; Physician to the Mothers' and Babies' Hospital and to the Maternity Hospital.

I. *Preventive Treatment of Puerperal Eclampsia.*—Our present knowledge of the causation of puerperal eclampsia, meager though it be, furnishes us with the key to the preventive treatment of the condition, still with a working hypothesis, namely, the early condition of the preeclamptic state. To accomplish this, something more than a perfunctory monthly or bimonthly examination of the urine for the presence of albumin is called for, since non-albuminuric eclampsia occurs in from nine to sixteen per cent of cases, and it would appear to be quite as fatal as, if not more so than, an eclampsia accompanied by albuminuria. Something more is demanded than the late recognition of renal insufficiency, as it shows itself in a marked diminution in the quantity of urine, specific gravity of the same, and amount of urea excreted.

When we shall accustom ourselves to watch our cases of pregnancy, not only for the physical signs of pronounced renal inadequacy as an index of an approaching eclamptic attack, but also for the general symptoms of the overcharging of the blood with toxic material —as high arterial tension, headache, gastric disturbances, physical and mental lassitude—and further for failure of the bowels, liver, skin, and lungs properly to perform their functions, and intelligently treat the same, then, and only then, shall we have done our whole duty by our patient, and done all in our power to correct the preeclamptic condition and avert an impending eclampsia.

We should formulate our line of treatment of this preeclamptic state somewhat in the following manner:

1. Reduce the amount of nitrogenous food to a minimum.

2. Limit the production and absorption of toxic materials in the intestines and tissues of the body, and assist in their elimination by improving the action of (*a*) the bowels, (*b*) the kidneys, (*c*) the liver, (*d*) the skin, and (*e*) the lungs.

3. If necessary, remove the source of fetal metabolism and of peripheral irritation in the uterus by the emptying of that organ.

Our first indication—the reduction of the amount of nitrogenous food to a minimum—can best be fulfilled in an exclusive milk diet, to which, as the symptoms subside or disappear, can be added fish and white meats. I have found it not only safer, but less trying to the patient, to commence with an absolute milk diet, than to compromise and afterward be compelled to cut off all but the milk. For our second indication—that of elimination—we must first secure an abundant supply of pure air and water. This may be assisted by moderate exercise or light calisthenics or massage, in certain instances. For the bowels I advocate daily doses of colocynth and aloes at bedtime, followed by a saline in the morning. For the liver an occasional dose of calomel and soda at bedtime, followed in the morning by one of the stronger sulphur waters, as Rubinat, Villacabras, or Birmenstorf. Increased diuresis is secured by maximum doses of glonoin. The action of the skin is encouraged by encasing the body in wool or flannel underclothing, by massage, by the warm bath, hot bath, hot pack, or hot-air bath, according to the urgency of the case.

I am accustomed in instances of eliminative insufficiency to give at bedtime twice weekly, or more frequently if necessary, a tablet composed of calomel, digitalis, and squill, each one grain, and muriate of pilocarpine one-twentieth of a grain. This is followed in the morning by a full dose of Villacabras water. I have found a decided diaphoretic-diuretic action to follow the administration of such a combination, with the additional prompt action upon the liver and intestines as well. So of our five eliminative processes four are stimulated to more energetic action by its use.

Although jaborandi has been practically

abandoned as a diaphoretic in the presence of an eclamptic attack, I know of no good reason contraindicating its use in this, the preeclamptic, state in the absence of pronounced cardiac disease, and I advocate its use for its diaphoretic and diuretic actions.

Finally, when exercise cannot be taken and an abundant supply of fresh air is wanting, oxygen inhalations will prove of service. Some preparation of iron will also be called for, such as the tincture of the chloride, or Basham's mixture.

This, then, is the general hygienic and medicinal treatment of the preeclamptic state. No hard and fast rule can be laid down. Every case must be treated on its merits. In one a restricted diet and mild stimulation of the renal and intestinal functions is sufficient, and the patient may be allowed to be about and even exercise in the open air, her skin being protected from sudden changes by being encased in wool or flannel. Other more pronounced cases of eliminative insufficiency must be kept absolutely quiet in bed, upon an exclusive milk diet, and the stimulation of all the eliminative organs must be resorted to, to remove the symptoms of impending eclampsia.

But it must be kept ever before us that the hygienic and medical treatment is only of secondary importance to the milk diet, and that the latter is the foundation of the preventive treatment of puerperal eclampsia. Given a case in which in spite of exclusive milk diet, and the vigorous stimulation of the five excretory outlets already mentioned, the symptoms and signs of the preeclamptic condition continue or at any time become urgent, the indication is to induce artificial abortion or premature labor.

I cannot understand the position of those authorities (notably of the British school of midwifery) who advise against inducing labor in the presence of urgent symptoms of the preeclamptic state.

The arguments that by the methods usually in vogue induced labor increases reflex excitability and precipitates convulsions; that by the same methods, because of the time necessary to remove the barrier of the cervix, the patient's fate is sealed before the delivery is effected; and, moreover, that the onset of labor increases the danger to the patient, are good ones and must demand our attention.

In answer, I would state that our methods of terminating the pregnancy need not increase reflex excitability, and if perchance they do, the excitability is readily controlled for the time necessary to accomplish our ends; that the time necessary is, in most cases, very short; and finally, that to-day the onset of labor and the termination of pregnancy may be practically brought about at one and the same time, and we have no prolonged or tedious labor to react unfavorably upon the patient.

I believe in a rapid manual dilatation of the os in these cases, but only after the cervical canal is in a condition favorable for its safe performance. Moreover, I would insist upon a complete dilatation of the os before delivery is undertaken.

II. *The Curative Treatment.*—In the presence of an eclamptic attack we face a desperate condition. The latest statistics from various parts of the world still place the maternal mortality at from twenty-five to thirty-five per cent. As long as the pathology of eclampsia remains obscure there can be no rational curative treatment of the condition. My experience does not permit of my recommending any single treatment. Many subjects recover, no matter what the treatment, many die in spite of treatment, and others do well without any treatment at all. No single treatment can be recommended; each case must be managed according to the indications present. My experience has taught me that not a single but a combined treatment promises best for saving the lives of mother and child in the event of an eclamptic seizure. I would offer for this combined treatment three indications, as follows:

1. Control the convulsions.

2. Empty the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the patient as possible.

3. Eliminate the poison or poisons which we presume cause the convulsions.

Although I have named these indications in the order of their importance, still I often carry them all out at one and the same time. In another class of cases I fulfil the first and third, and wait for a suitable moment to carry out the second. The third indication —eliminatiôn—should really go hand in hand with the first two, and be put into action at one and the same time with them.

1. *Control the convulsions.* There is to-day a wide range of opinion regarding the relative value of the various medicinal means employed to control eclamptic convulsions. That eclamptic attacks must be controlled,

that the danger to mother and child is in direct proportion to the number of convulsions occurring before the emptying of the uterus, most observers are agreed. The four medicinal means most certain and safe as antieclamptics are chloroform, morphine (hypodermically), veratrum viride, and chloral hydrate, the latter alone or combined with sodium bromide. It would appear from the Transactions of the last International Congress of Obstetrics and Gynecology that of these drugs morphine is most frequently relied upon. My preference is for chloroform, veratrum viride, and chloral, in the order named. Until three years ago I used morphine freely in eclampsia, but since have abandoned its use almost entirely, as I believe it prolongs the posteclamptic stupor and increases the tendency to death during coma by interfering with the eliminative processes.

Second only to chloroform in value is veratrum viride. Provided the pulse be strong as well as rapid, it is the most certain means at our command for temporarily and even permanently controlling the convulsions. When the pulse is weak I rely upon morphine hypodermically, chloroform by inhalation, and chloral by rectum, with stimulation if necessary. As a temporary measure in antepartum and intrapartum and even as a curative means in postpartum eclampsia, veratrum viride will, I believe, accomplish all that has been claimed for it.

Veratrum viride reduces the pulse-rate, and convulsions are practically unknown with a pulse-rate of 60 or under; it reduces the temperature; it relaxes and renders more yielding the rigidity of the cervical rings; it causes prompt diaphoresis and diuresis, so that it aids not only in the fulfilment of our first indication, the control of the convulsions, but in the third, the elimination of an unknown poison, as well. My practice has been to rely upon chloroform, veratrum viride, and morphine or chloral as temporary measures, and the prompt emptying of the uterus permanently to control the convulsions.

2. *Empty the uterus under deep anesthesia by some method that is rapid and that will cause as little injury to the woman as possible.* Those who follow the teachings of Charpentier of France, and Winckel of Germany, namely, that the uterus in eclampsia should be left alone, except after full dilatation of the os, as the irritation of inducing labor or artificially dilating a cervix precipitates convulsive attacks, will, I believe, see many cases lost that could by prompt and intelligent measures be saved. It would appear from careful observation that the danger is practically over in some ninety per cent of cases the moment the uterus is emptied, if accomplished early in the attack. Not that by this means the convulsions always cease, but they become less dangerous, and the case becomes one of postpartum eclampsia, in which the mortality, as I have stated, is only seven per cent.

Although one can scarcely find an authority to-day, as shown by the reports of the last international congress, who absolutely rejects local interference in the presence of antepartum or intrapartum eclampsia, still authorities differ widely as to the extent to which such interference shall be carried out. Charpentier, in 1892, as the result of an exhaustive analysis of four hundred and fifty-four cases of eclampsia, and again in 1896 as the result of further observation, practically arrives at the same conclusions, namely: (1) That labor should be waited for and terminated naturally whenever possible. (2) That induced labor should be reserved for exceptional cases in which medical treatment has entirely failed. (3) That interference should be delayed until the cervix is dilated or dilatable, so as to avoid danger to the mother; that in eclampsia Cæsarian section, manual dilatation of the cervix, and especially deep incisions of the cervix, are absolutely unjustifiable.

During pregnancy and the early part of labor four procedures are offered for rapidly emptying the uterus, viz.: (1) Cæsarian section; (2) mechanical dilatation of the cervix (various methods); (3) deep incisions which at once completely remove the barrier of the cervix; (4) combined mechanical dilatation and deep cervical incision.

The first method, Cæsarian section, for the relief of eclampsia, still carries with it a high mortality (36.26 per cent, according to Charpentier's figures); moreover, there are many objections to its employment, as the uterine atony and hemorrhage, the irritation of the uterine and abdominal scars and of the curative peritonitis about the uterine sutures, all of which are to be avoided as exciting causes of subsequent eclamptic seizures. The second method, the mechanical dilatation of the cervix and the immediate extraction of the fetus, appears to be the popular method of the day. Properly performed it is safe and efficient. Before

dilatation is well advanced, however, from forty minutes to an hour and a half is necessary safely to carry it out, and certain conditions of the cervix, even in this time, refuse to yield to manual dilatation or result in lacerations into the lower uterine segment. The third method of delivery, by deep cervical incision, offers us a surgical means for emptying the uterus in from five to ten minutes, provided the supravaginal portion of the cervix has disappeared or is made to disappear by appropriate means. The fourth or combined method is a combination of the second and third methods, and is applicable to cases in which the supravaginal portion of the cervix is still present and rapid emptying of the uterus is demanded. Here mechanical dilatation of the os until the internal os has been caused to disappear is made use of, and the dilatation then in an instant completed by the incisions. The third method and its modification, the fourth, are comparatively new, and we have few statistics as to the results of the operation. I believe a rapid manual dilatation of the os and subsequent extraction of the fetus will fulfil the indications in most cases, but unless this can be intelligently carried out, with a due appreciation of the mechanism of dilatation, especially in primiparæ, a purely expectant treatment will give better results. Unfortunately puerperal eclampsia is four times more frequent in primiparæ than in multiparæ, although, on the other hand, the mortality is greater in the latter.

I believe a warning should be sounded against the careless undertaking of rapid manual dilatations of the os, particularly in eclampsia. Uterine rupture and death have, we know, been the outcome. Moreover, undue shock has resulted from the dragging of a fetus through an imperfectly dilated os, to say nothing of the loss of the child.

In placenta prævia the hemorrhage and the resulting anemia of the lower uterine segment and cervix render these parts more readily dilatable. In eclampsia the reverse obtains, as I have already hinted. Hence it is that in eclampsia, in instances in which the internal ring of the os has been drawn up into the body of the uterus and the external ring remains rigid and tense, particularly in primiparæ, and there is urgent need of rapidly terminating the labor, I prefer four clean incisions extending from the edge of the os to the uterovaginal junction, in order to save the patient from the greater dangers of rapid manual dilatation.

In the second place, I believe a warning is not out of place against the premature extraction of the fetus before full dilatation has been secured and the external ring of the os paralyzed. Premature extraction, under such circumstances, has been known to result in many unnecessary and dangerous lacerations of the lower uterine segment, and an increase of the mortality for the child and mother.

3. *Elimination of the poison or poisons which we presume cause the convulsions.* For the elimination of the toxic materials from the blood and tissues I have nothing new to offer. I believe it essential, however, to rely not upon one but upon all the eliminative organs of the body, and, moreover, that the fulfilment of this third indication in the treatment of eclampsia should go hand in hand with the first two already mentioned. To this end I secure catharsis as early and as promptly as possible by the administration of croton oil, compound jalap powder, or calomel, followed by salines and high enemata of sulphate of magnesium. In the coma or posteclamptic stupor of the condition I have relied mainly upon the repeated administration of concentrated solutions of sulphate of magnesium or Villacabras water, by means of a long rectal tube high up in the descending colon. The hypodermic administration of magnesium sulphate I have found too slow and uncertain to be of any use. Diuresis I obtain by dry or wet cups over the kidneys, followed by hot fomentations. The value of glonoin as a diuretic and antieclamptic, the latter by reducing the arterial tension, I believe cannot be overestimated. Second only in value to glonoin I consider veratrum viride. I give it at this time for the same reasons and looking for the same results as when I administer it in the preeclamptic condition. Diaphoresis is encouraged by means of the hot-air bath or the hot pack, my preference being for the former. Pilocarpine as a diaphoretic in the presence of an eclamptic attack I utterly reject, because of the danger of edema of the lungs and glottis, which it may produce. I have seen these conditions follow promptly upon its administration.

The drawing off of large quantities of toxic liquids in the form of blood or serum, by means of venesection, catharsis, diaphoresis, diuresis, followed by the replacement of the same by intravenous, stomachic, rectal, or hypodermic means, causing a washing or disintoxication of the blood and tissues, as it were, has thus far proved of doubtful value. In instances of collapse, however, with the

small compressible pulse, the introduction into the blood of a normal saline solution is of the same value here as in collapse under other circumstances. As a general stimulant, to assist in the elimination from the lungs and to prolong life in the posteclamptic stupor or coma, I have found the free administration of oxygen of the greatest value. Further, alcohol will often be needed as a stimulant during and after an eclamptic attack, and strychnine in the postpartum state and in the face of threatened collapse—although for physiological reasons it would seem to be contraindicated—has served me well.

Finally, although no one has been or is a firmer believer than the writer in the efficacy of a prompt removal of fetal metabolism and of irritation for not only the control but the cure of the eclamptic condition, still I beg to enter a protest, first, against the careless use of the term "accouchement forcé" as applied to the rapid, scientific, and intelligent emptying of the uterus; and secondly, to the easy confidence with which this accouchement forcé has been recommended as the best if not the only means at our command for the control of eclamptic seizures, without attaching sufficient importance to the condition of the cervical barrier. By accouchement forcé we understand to-day three operations, namely, (1) the complete instrumental or manual dilatation of the cervical canal, followed by (2) either combined or direct version, or the application of the forceps, and (3) the immediate extraction of the child.

TREATMENT OF PUERPERAL ECLAMPSIA.

By A. F. A. King, M.D.,
Professor of Obstetrics and Diseases of Women in the Medical Department of the Columbian University, Washington, D. C.

Assuming the convulsions to be of uremic origin, my treatment is hydragogue cathartics, the hot bath, either water or vapor, or the hot wet pack to promote diaphoresis; then in succession over the kidneys, cupping (dry or wet, as the patient may be respectively anemic or the reverse), mustard plasters, once only, and continued only long enough to redden the skin; then hot poultices of flaxseed meal and digitalis leaves. When renal congestion has thus been relieved (not before) I give digitalis and citrate of lithium internally to increase renal excretion. Place the patient in Sim's position, or in any other that will divert the pressure of the gravid womb toward the diaphragm and away from the pelvis.

To control the convulsions themselves when they have actually occurred, I give large doses of fluid extract veratrum viride with morphine, hypodermically; and in anticipation of each convulsion, just as it is about to begin, a cautious inhalation of chloroform.

Of course, it is desirable to deliver as soon as practicable, usually by forceps, but if the convulsions can be kept in abeyance and labor proceed by itself without interference, so much the better. All violent manipulations with instruments or otherwise should be avoided, if it can judiciously be done.

I think there is often a want of sufficiently strict observance of the patient's environment; I mean the room should be kept absolutely quiet—no slamming of doors, clattering of crockery, or talking aloud. Let the room also be dark.

One thing more: it is usually advised to place something between the teeth to prevent the tongue from being bitten. It does not occur to most of us that this clenching of the tongue by the teeth is sometimes a natural conservative process to save the patient's life by preventing the tongue sagging backward and thus shutting down the epiglottis over the glottis and stopping respiration, when the convulsion is over. In such case the lower jaw should be depressed and the tongue drawn forward with forceps. I am convinced that cases sometimes die after one convulsion from this falling back of the tongue.

THE TREATMENT OF PUERPERAL ECLAMPSIA.

By Edward Reynolds, M.D.,
Instructor in Obstetrics and Assistant in Gynecology in Harvard University.

The following is a statement of my practice in puerperal eclampsia, by which I mean to include the several varieties of obstetrical eclampsia. I believe we know so little of the pathology of the eclampsia of gestation that our knowledge of it can be summarized by saying that the convulsions are the result of the altered physiological state of the pregnant woman (which state of course persists in a lessening degree through the early part of the puerperium), and is attended by a decreased activity of the kidneys and an increased irritability of the convulsion centers.

I believe that with this limited knowledge of the pathology of the affection the treatment of it is necessarily empirical and can rationally be directed merely to the removal of the only two facts which we are sure about—*i.e.*, the activity of the kidneys is lessened and the irritability of the convulsion centers increased. These two factors, however, vary in their importance in individual cases, and our empirical treatment must therefore vary with them. We are enabled in some cases to make our treatment a little better than symptomatic, and a little more directed to a radical cure, by the fact that we know the condition to be dependent upon pregnancy, and may therefore in the eclampsia of pregnancy and parturition aim to remove the cause of the eclampsia by a prompt termination of the pregnancy. For prophylaxis I am a strong believer in the efficacy of diuresis, catharsis, and diaphoresis, obtained by the forced ingestion of fluids, hot immersion baths, and saline cathartics, but they should be reenforced by rest in bed and a milk diet (this complete or partial, according to the severity of the case), and the exhibition of mild sedatives, such as the bromides.

When even one convulsion has actually occurred I believe it is important that one should remember that if he loses a mother from eclampsia he will almost always lose the child also; and as it has been my experience that prompt delivery immediately after the advent of convulsions usually saves the mother, while a temporizing policy frequently loses both, I have come to the conclusion that the probable loss of maternal and fetal life due to temporizing methods far outweighs the certain loss of some immature feti by prompt delivery, and now advocate immediate delivery under ether at one sitting for all cases of eclampsia in which one undoubted convulsion has occurred before the delivery of the child.

After delivery or in the puerperium I use catharsis, obtained by calomel and croton oil if the patient cannot swallow well enough to take salines, diaphoresis secured by the hot-air bath, and diuresis obtained by the administration of the largest amounts of water which the patient can be induced to swallow, fortified by citrate of potash or cream of tartar where the total quantity taken is small. I graduate the dose of my cathartics, and the heat and duration of my hot-air bath, by the condition of the patient's pulse, aiming to produce free sweating and three or four loose motions in the twenty-four hours if the patient's strength permits. I occasionally use a single hypodermic injection of one-sixth grain of pilocarpine in cases where I am unable to obtain diaphoresis without it; but I am afraid of this drug, as I have frequently seen it produce a watery secretion from the lungs rather than from the skin. I am not much afraid of its effect as a cardiac depressant unless in very weak women. I also use sedatives almost as a routine, giving bromides, or large doses of the bromides in combination with small amounts of chloral, to cases in which the urinary suppression is well marked and appears to be the main feature, but using chloral to the point of physiological effect, with or without bromides, in cases in which the convulsions have come with comparatively little disturbance of renal function. I prefer chloral to morphine, both for the theoretical reason that morphine decreases the secretions, and also on the empirical ground that my experience has led me to believe that it works better in practice. I have used venesection and the effusion of salt solution under the breasts, but have observed little or no favorable effect from either. It is fair to say that my employment of these methods has been limited to unfavorable cases. I have not personally employed veratrum viride, but have seen in consultation a good many cases in which it had been previously employed without the good results so often claimed for it.

I shall look forward with interest to reading the other contributions to this symposium, as the subject is so very obscure that it seems well suited for investigation by the collective method, but I hardly believe that we shall obtain any marked improvement in results until we have learned something more about the pathological cause of the affection.

THE TREATMENT OF ECLAMPSIA.

By Richard C. Norris, M.D.,
Physician in charge of the Preston Retreat, Philadelphia.

The most efficient treatment of eclampsia is its prevention. Until physicians realize that all pregnant women should be carefully observed throughout at least the latter half of pregnancy, in order to recognize the first appearance of toxemia, this dreaded disease with its high mortality will continue to claim its victims. While the most recent investigations have not demonstrated the actual cause or causes of eclampsia, they all indicate that toxins of unknown composition and of various origins are the underlying factors,

and that these poisons produce their ill effects through the inefficient work of the liver, the kidneys, the bowel, and the skin. An aggravation of the common subjective phenomena of pregnancy will first call attention to a beginning toxemia. Neuralgia of rather obstinate character, irritable temper, excessive vomiting, marked salivation, a heavily coated tongue, hebetude, and other signs of inactivity of the liver, are indications that the organs of defense and elimination are beginning to feel the strain put upon them. The urinalysis at this early stage commonly shows the urine to be free from albumin, but the percentage of urea is decreased, and that of uric acid is increased. The presence of sugar is a certain sign of hepatic deficiency, and indican and peptones may also appear in the urine.

The routine examination of the urine of pregnant women for albumin alone is therefore not enough to determine the appearance of dangerous symptoms. For practical purposes the percentage of urea, the specific gravity, and the amount voided must be determined, and even these only serve as a clinical index of the amount of waste products successfully excreted. A further study of the constitutional signs of toxemia must be made to properly estimate the danger and to learn whether the brunt of the toxins is borne by the central or peripheral nervous system, the circulation, the gastrointestinal, the hepatic, or urinary functions. The weakest function in each individual case will first give way, and first manifest the signs of the ill effect of the toxins. While the indications for special treatment will be made plain by a critical study of individual cases, the most important indications in all cases are to prevent, as much as possible, by diet, the formation of toxins; to aid the liver to destroy them, and the excretory organs to eliminate them. When the urinary analysis and the constitutional signs of toxemia point to a slight deviation from the normal, I have found it sufficient to modify the diet, eliminating nitrogenous foods, and directing an abundance of milk and water, and a mild laxative.

The advantage of calomel as a laxative for pregnant women is very great, since it is probably the best intestinal antiseptic, besides acting upon the liver, the organ that especially requires attention during pregnancy. For graver cases showing marked toxemia, with the percentage of urea diminished below one per cent, the specific gravity below 1010, and the quantity of urine reduced to 800 or 1000 grammes, the most active treatment is demanded. This should include rest in bed, the patient occupying the genupectoral position at intervals compatible with her comfort. An exclusive milk diet until marked improvement occurs is essential. The free use of normal salt solution I have found of greatest advantage. The patient should be placed in the Trendelenburg posture and the colon daily flushed with at least two gallons of salt solution. In very urgent cases hypodermoclysis may be desirable. A hot-air bath or a hot pack should be reserved for cases so alarming as to threaten the necessity for terminating pregnancy.

Of all drugs available for the rapid elimination of waste material I have learned to place most confidence in Epsom or Rochelle salts.

It will be noticed that I have made no mention of the use of drugs which, for their diuretic effect, are frequently employed with great confidence. Digitalis, diuretin, benzoic acid, and similar drugs I have used in the past, but it is my conviction that the more rational plan is to rely upon the mechanical diuretics, such as an abundance of pure drinking-water and rectal injections of salt solution, and upon elimination by the skin and bowels, and thus to save as much as possible the kidneys, whose functional activity has been overtaxed by nature's efforts at elimination.

There exists considerable difference of opinion as to the necessity for terminating pregnancy in cases of threatening toxemia, and it requires good judgment and a large experience with these cases to decide in individual instances the safe course of action. Analysis of the urine cannot always guide us, nor will a careful study of the constitutional signs of toxemia always determine the question. My experience with cases of toxemia in pregnant women has taught me that the urinalysis may exhibit the gravest changes without marked constitutional evidences of toxemia, while on the contrary, the urine may be only slightly abnormal in a patient showing dangerous symptoms of toxemia. A sudden diminution in the waste products with the appearance of alarming constitutional symptoms is often more favorable because more amenable to treatment than a slowly appearing and gradually increasing toxemia. When the specific gravity of the urine is low, the quantity voided steadily diminishing, the percentage of urea persistently decreasing with or without the presence of albumin, the case is really alarm-

ing and indicates a chronic process which may lead to the gravest dangers.

If any single fact, more than another, can be our guide to determine the necessity for terminating pregnancy, it is that the toxemia has developed steadily and slowly, and that the constitutional signs and urinalysis keep pace with each other in giving evidence of the accumulation of toxins. After observing the progress of a case over a period of a week or two, if the patient's condition steadily improves the prophylactic measures employed may be continued. If, however, the patient's condition steadily grows worse, or after showing improvement manifests at intervals sudden relapses, the only safe course is to terminate the pregnancy.

My consultation practice too often has made me realize that the family doctor fails to appreciate the necessity for interference in these grave cases. He will pride himself on successfully carrying many patients to term only to have forced upon him, when he least expects it, the disaster of delay.

Having neglected the opportunity to prevent the occurrence of convulsions, or when the cases are first seen in the convulsive stage of the disease, the indications for treatment are, first, to control the convulsions; secondly, to aid and hasten the elimination of toxins; and thirdly, to deliver the patient as speedily as possible, but in accordance with a conservative obstetrical treatment. The patient should be protected from the violence of the convulsion. Injury to the tongue can be avoided by forcing the handle of a brush covered with a towel between the jaws. The administration of chloroform to control the convulsions, in my experience, has been preferable to hypodermic injections of morphine. A drachm of chloral by enema, repeated four or five times in twenty-four hours, if necessary, is always indicated. Whether veratrum viride or venesection shall be employed depends in great measure upon the character and frequency of the convulsions, the strength of the patient, and the condition of the circulation. In primigravidæ, where the pulse is strong and full, the face cyanotic, and the patient herself full-blooded, venesection until a positive effect has been produced upon the pulse has been my practice. In cases less sthenic, where the pulse is weak and running, veratrum viride employed hypodermically in doses of eight minims of fluid extract, repeated at intervals sufficiently often to produce a decided slowing of the pulse, is exceedingly useful. In a few cases the pulse may be so weak, or even absent, and the heart action so feeble, that strychnine and nitroglycerin are necessary. It will require the best of therapeutic judgment to differentiate between cases requiring the most vigorous means to depress the circulation and those in which stimulation, on the contrary, is strongly indicated. The next indication, to aid elimination, is best accomplished by the injection of normal salt solution under the mammary glands and into the rectum. In combination with venesection, or the use of veratrum viride, the action of the saline solution upon the circulation in restoring tone to the pulse is really remarkable. A hot wet pack, secured by wrapping the patient in blankets wrung out of hot water, will aid the action of the skin. The ill effect of heat upon the intracranial circulation will best be counteracted by an ice-cap on the head.

The tendency in eclampsia to edema of the lungs contraindicates the employment of pilocarpine. I have, however, when the skin is exceedingly dry, found one small dose, one-twelfth of a grain, very efficient in starting a gentle action of the skin, which can then be maintained by the external application of heat, as a hot-air bath or hot wet pack. It is of the utmost importance to secure a free action of the bowels. It has been, in my experience, a clinical observation that the patient's chance for recovery is always increased when free purgation can be secured. Three to five drops of croton oil in a teaspoonful of sweet oil or butter, placed upon the back of the tongue, will very often prove efficient. A rectal injection of turpentine one drachm, Epsom salts and glycerin each two ounces, water six ounces, is always to be employed.

In my experience no drug is so efficient for rapid elimination of poisonous material as Rochelle and Epsom salts, and if the patient is not comatose between the convulsive attacks, and can swallow, one or the other of these drugs should be given in frequently repeated doses until *very free* catharsis is secured. In cases comatose and unable to swallow, I have succeeded in obtaining this effect by introducing a large dose, two to four ounces, into the stomach through a stomach-tube.

All authors agree that labor should be terminated as soon as possible. To those who believe that the rapid dilatation of the cervix, incising it if necessary, and the immediate extraction of the child, are necessary

to the proper conduct of the obstetrical treatment of eclampsia, it is my conviction that their arguments should induce them to perform Cæsarian section as the most rapid means of emptying the uterus. The mortality of the latter operation under such circumstances is so exceedingly high that it cannot be considered advisable. It has been my custom to rely upon a very aggressive medical treatment to combat the spasms and to eliminate the poison, and then, after sufficient dilatation of the os has occurred, to rapidly deliver with forceps and terminate the labor. If the child has perished, craniotomy of course is the operation of choice.

While it is true that the patient's chances for recovery are increased the moment she is delivered, the immediate and remote dangers of violent means to effect delivery are also increased, and in my experience they outweigh any advantage from accouchement forcé. The elimination of the poisons threatening her life means more to the patient than a rapid emptying of her uterus by violent means. In the gravest cases where the accumulated toxins have overwhelmed the patient and areas of necrosis are present in important organs, it matters not how rapid the delivery or how aggressive the medical treatment—the patient is doomed. The opportunity to save her life was lost when the termination of her pregnancy was neglected.

Having delivered the patient and having controlled the convulsions, the subsequent treatment during the puerperal period should consist in further elimination of the poison by hot-air baths secured by means of a shoulder of stove-pipe and an alcohol lamp. The cathartic action of Epsom salts should be kept up. The citrate of caffeine in three-grain doses every four hours, watching for its intoxicating effect, I have found especially useful both for its diuretic action and its support to the heart, which has been weakened by the aggressive treatment employed during the convulsive stage of the disease. An exclusive milk diet is always necessary until the patient's convalescence is well established.

THE PROGNOSIS AND TREATMENT OF NEPHRITIS.

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No sooner does the physician recognize the presence of inflammation in the kidney than the question arises in his mind and in the mind of the patient, what is the prospect of recovery, and what is the probable duration of life, provided the renal condition is incurable? Before it is possible for us to discuss these interesting points it is necessary to divide the various forms of nephritis into groups which are based upon the renal changes present in each. At the very first we must separate acute nephritis from the chronic degenerative forms of renal disorder because its causation, duration, and pathological condition is so different from the chronic type that it is an entirely different entity. This fact has been well emphasized, and therefore I need not describe what the anatomical and etiological differences are. Suffice it to state that the prognosis of acute diffuse nephritis is as a rule quite favorable. Thus we find that a large proportion of these cases recover, but the percentage of recoveries is difficult to determine, since other conditions are often associated with the renal change. Thus in the acute nephritis of childhood dependent upon scarlet fever there is, aside from the toxemia which arises from inactive kidneys, the additional toxemia of the scarlet fever poison itself, and in many cases sepsis from infection from other microorganisms, such as the streptococcus, which aid in hastening a fatal issue.

Further, the degenerative changes in the heart and vessels, the pulmonary and pharyngeal complications, and the fever, all tend to throw additional factors into the scale which tend to cause death in scarlatinal nephritis, aside from the evil influence produced by this condition itself. In the case of children the prognosis of an acute nephritis complicating scarlet fever is favorable in direct proportion to the severity of these general influences, and the longer the child survives these inimical influences the greater probability is there of recovery. This is, of course, true of all prognosis, but it is especially true of this period of life, for children possess such wonderful reparative power that if they can but survive the mixed toxemia for a few days there is great probabilty of the damaged cells in the kidney being repaired or replaced so that normal renal function will be possible. It is true, as is well emphasized by Strumpel, that every case must be judged with great caution, partly because it may be the starting-point of a subsequent chronic renal disease, and partly because dangerous sequelæ may develop in cases which at first seem mild.

There are three factors of prime importance in this class of cases: the degree of toxemia or severity of infection; the degree of anasarca, because it shows vascular, cardiac, and renal trouble and produces serious complications by mechanical pressure; and the presence of marked signs of irritation of the nervous system or obtunding of its activity by poisons.

Given a case of acute nephritis in a child, it is evident from what has been already said that if the acute conditions produced by the inactivity of the kidneys can be survived, recovery will in all probability take place. Some of these cases, however, develop such a profound degree of toxemia that the condition is hopeless, all the epithelial cells of the kidney being destroyed and their functions set aside so completely that death ensues before the kidney recovers sufficiently to eliminate toxic materials from the blood. When this condition is developed, remedial measures are necessarily to a large extent impotent, because the condition is so far advanced. As a matter of fact, in the acute nephritis of both children and adults, the largest part of the treatment, if it is to be successful, must be prophylactic, and if precautionary measures are taken grave renal complications can often be avoided. This is well illustrated by those cases of scarlet fever in children in which the primary manifestations of the disease are very mild, so mild that the careless physician and nurse do not insist upon the patient remaining in bed, but nevertheless, in a short time evidences of advanced kidney infection develop and death speedily ensues.

By the administration of mild alkaline diuretics, copious draughts of pure water, and the use of purgatives, which will rid the body of toxic materials through the bowels and improve the abdominal circulation, much can be done toward preventing severe renal involvement. Further than this, by the use of hydrotherapeutic measures, such as cold sponging and friction, which aid the circulation, stasis of the blood and kidney can be avoided and a large amount of toxemia set aside, just as we set it aside in typhoid fever by such measures; and it is a well known fact that, even when toxemia is advanced and renal secretion is scanty, placing the patient in a warm bath and then dashing cold water over the head, shoulders, and back will by the circulatory reaction which develops restore the patient to consciousness, and increase urinary flow. Such treatment probably also increases the elimination of poisons by the skin.

It is well to emphasize the fact that should cold water be employed, active friction must be practiced with it and reaction must be produced, for if friction is not employed, and if the bath is continued for a long period of time so that the circulation is impaired, more damage is done than if this procedure were omitted. In other words, the use of hydrotherapy in this condition must be governed by the knowledge of the methods by which it should be employed.

When we come to the consideration of the two forms of chronic nephritis, the parenchymatous and interstitial, we find that prophylactic treatment can rarely be instituted since both conditions are so insidious in their onset that the patient is usually well advanced in the disease before he presents himself for treatment. Prophylactic treatment in these cases must therefore be devoted to the prevention of the spread of the disease as far as possible, the relief of symptoms which may be annoying or dangerous, and the institution of a course of dietetics and medication which will also tend to relieve symptoms and to enable the patient to avoid throwing extra strain upon the kidneys. In other words, the mode of life to be followed by the patient is an important point with which the physician must deal.

I have recently seen a case in consultation which emphasizes this fact very strongly. A patient, a man of fifty odd years, apparently in perfect health, insisted upon riding some thirty or forty miles on a bicycle at a high rate of speed. The subsequent course of the disease proved that he had been suffering for a number of months with an insidious nephritis, which immediately became severe in its manifestations, causing his death at the end of three weeks. Doubtless the violent strain put upon his heart and kidneys by this exercise precipitated the fatal issue, and had the patient been warned of the danger of such excessive exercise his life might have been prolonged. On the other hand, renal cases should not be deprived of all exercise, unless it is evident that a feeble heart requires rest.

In regard to the question of diet, it is evident that no cast-iron rules could be laid down, and many cases of chronic contracted kidney, unless they are markedly gouty, can have a liberal diet, provided it is one which is easily digested and not calculated to produce gastric and intestinal disturbances. In

other words, these patients need not have their meat cut from the diet list, but should be allowed to take good wholesome food, provided that it is not taken in excessive quantity.

In chronic parenchymatous nephritis it has been held by many practitioners, as is well known, that it is our duty to eliminate from the diet list eggs and red meats; on the other hand, many physicians of large experience are coming to the belief that this is depriving the patient of a large amount of nourishing food which in reality he can take with impunity, provided it is not taken in excess of the needs of the system.

Probably the most satisfactory rule to be followed in these cases is to be governed by the effect of the administration of eggs and meats upon the patient, and upon his elimination of albumin. If on the administration of eggs and meats his albuminuria is markedly increased and he does not seem to do so well in general, it is evident that these articles should be taken from him. If, on the other hand, his general health and strength improve by their use, and the albuminuria is not increased, it is evident that they should be allowed. In some cases, where the albuminuria is marked, the use of albuminous food seems to take the place of the albumin which has been lost through the kidneys.

Of course, in cases of acute nephritis it is advisable to avoid albuminous food until the acute period of the disease is passed by. When there is marked diminution of urinary flow, as we ordinarily find it in parenchymatous nephritis, one of the most important functions of the physician is to increase this secretion. Drugs have been much abused under these circumstances; too often they are administered without clear ideas of what they are to accomplish. If it is believed that the scanty urine depends upon inactivity of the renal epithelium, the administration of caffeine may be wise, or in other instances the production of free diuresis by the use of bitartrate of potassium and juniper berries in infusion may produce the best results. This old combination, which has to a large extent dropped out of use with some practitioners, is much too valuable to be lost sight of.

If, on the other hand, an examination of the heart indicates that this organ is unduly feeble, and that the albuminuria and scanty renal secretion depend upon renal stasis, then digitalis or strophanthus, alone or combined with juniper berries and bitartrate of potassium, is very useful. It has been thought by some persons that it is advisable in this class of patients to increase urinary flow by the administration of copious draughts of pure water. While this may be good therapeutics in a certain number of cases, it should be governed by the dropsical condition of the patient; if there is deficient renal elimination of fluid, because the kidneys are unable to pass it out of the blood, it is manifest that copious draughts of water will not remove impurities from the body, but will simply tend to increase dropsical tendencies.

So far as I know, there are no drugs which distinctly decrease the elimination of albumin in advanced parenchymatous nephritis, and it seems to me doubtful whether the attempts to check the escape of albumin by such drugs are wise, since if they succeed they probably also decrease the elimination of impurities from the blood. Most of these remedies have been astringents which are supposed to act by contracting the renal blood-vessels. There is, however, one drug which ought to be remembered in cases of parenchymatous nephritis, namely, iron. On the other hand, this drug is too much relied on by many physicians; aside from the fact that when given in mixture a diuretic effect is produced, the large doses of iron which are frequently given in this way probably do more harm than good, as they tend to produce constipation, and only very minute amounts of iron can be used. Probably spirits of mindererus, when given alone, would produce almost equally good results; and if minute doses of iron were given in pill form, equally good influences would be produced in combating anemia. For the relief of dropsy, or the relief of general anasarca, there is no doubt that hydragogue purgatives are useful in many cases. Oftentimes the unloading of the bowels by the use of purgatives decreases the congestion of the liver which is sometimes met with in these cases owing to secondary cardiac complications, and improves the patient wonderfully. Equally important as, if not more so than, the employment of purgatives, is the use of copious sweating produced by hot-air baths or by the hot pack. These therapeutic measures are of the greatest possible value and are so well known that it is not necessary for me to describe them in this paper.

In my experience the so-called medicinal diaphoretics are not of any great value. The profession is learning more and more that

pilocarpine is too much of a heart depressant to be employed in most of these cases, and either because of its depressing effect upon the heart, or by reason of its causing a profuse outpouring of the secretions into the bronchial tubes, its use is apt to produce that gravest of all conditions in nephritis—edema of the lungs. I do not think it ought ever to be employed in combating uremia, except perhaps when given in very minute doses to aid the action of the hot pack, and then the circulatory system should be assisted by minute doses of strychnine, which drug however may be contraindicated if the poisons of the disease seem to be producing great nervous irritation.

This important subject can well take much more of the space at my disposal, but the limitations which necessarily exist force me to close. In doing so, however, let me remind you that when uremia is once well marked, hypodermoclysis or intravenous transfusion of normal saline solution will oftentimes produce excellent results. Better results are obtained by this means in cases of uremia coming on as a result of chronic contracted kidney than in those due to parenchymatous nephritis, and when dropsy is marked they are least valuable.

In plethoric patients, or others with a high arterial tension, venesection is often advantageous.

Last of all, I may say a few words in regard to the contradictory views concerning the use of morphine in uremia. These contradictions I believe to be more apparent than real. Uremia is the result of the complex poisoning; in some instances poisons seem to be present which exercise a powerful depressing effect upon the nervous system, in others the effect seems to be that of irritation. Probably those cases which have been greatly benefited by the administration of morphine are cases in which the sedation of the nervous system produced by this drug is beneficial, whereas in those cases in which this condition has not been present the administration of morphine has simply increased the nervous atony. On the other hand, Sir George Johnson has recorded instances in which in his opinion the employment of morphine has caused rapidly recurring and ultimately fatal convulsions, perhaps by diminishing the excretory work of the kidney and producing constipation; and Tirard, in his recent book upon renal disease, uses these pregnant words in regard to the use of morphine: "I have always refrained from the use of a drug which might produce present comfort at the cost of the life of the patient."

As I have already said, it is evident that the question of the administration of morphine must be decided in each individual case, and that it cannot be ordered for or denied to every patient who presents himself with this grave malady.

ANESTHETICS, LOCAL AND GENERAL, AS APPLIED TO TAXIS, HERNIOTOMY, AND OPERATIONS FOR THE RADICAL CURE OF HERNIA.

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The administering of a general anesthetic and the production of local anesthesia by medicated fluids in operations for herniæ are matters of the utmost importance and require considerable skill, tact, and judgment.

Local anesthesia should be used in hernia operations:

A. When a general anesthetic cannot be administered without danger.

1. In some cases of strangulated hernia, when there is: (*a*) great distention of the abdomen; (*b*) a weak and rapid or failing pulse; (*c*) excessive vomiting which persists after washing out the stomach; (*d*) when the patients are constitutionally weak; (*e*) in those cases where the patient's capacity to appreciate pain is blunted, or he is too weak for a general anesthetic.

2. In marked organic diseases of the heart, liver, lungs, and kidneys; atheroma; advanced acute and chronic affections of the respiratory tract, *e.g.*, severe bronchitis; old emphysema and asthma; and advanced tuberculosis.

3. In old age, chronic alcoholism in persons past fifty years of age, and in markedly debilitated persons.

4. In marked arteriosclerosis.

5. In late operations, when patients are liable to have severe postoperative anesthetic shock.

B. When the patient will not submit to a general anesthetic. When local anesthesia is used little or no pain will be experienced till the sac is opened and the contents handled. By working rapidly a radical operation can be performed with but moderate pain. It is impossible to tell beforehand how long an operation will last, so that sometimes the finishing steps of the operation are painful,

but can be completed satisfactorily by using considerable persuasion.

As a rule inject hypodermically fifteen minutes before the operation one-third to one-half a grain of morphine when using local anesthesia. If cocaine is employed as the anesthetic, use a 1:100 solution in distilled water, which is warmed beforehand. Anesthesia lasts from thirty to fifty minutes, about the time required for an operation. The writer has never seen marked symptoms of poisoning when solutions are used in the strength recommended, and the anesthesia produced is as satisfactory as when stronger solutions are employed. Use cocaine as a routine, but if there is a clear history of poisoning from its previous use then employ eucaine. Begin the operation about three minutes after the injections and before the fluid is absorbed. Injections should not be made into the subcutaneous tissues, as they are especially apt to be followed by rapid absorption and toxic symptoms. Introducing the fluid into the Malpighian layer produces rapid, certain, and safe anesthesia.

Technique of Local Anesthesia.—The aseptic injecting needle is carried obliquely through the epidermis till the point is in the Malpighian layer. A minim of the 1:100 solution is injected, which causes whitening of the epidermis, and the needle is then forced along this layer and sufficient drops injected from time to time to produce the whitening until the needle is inserted its full length. The needle is all withdrawn except the point, and through the same puncture the needle is carried in the same line, but in the opposite direction, and sufficient drops injected. A two-inch needle used as just described, and inserted at the center of the field for the incision, can anesthetize through the one puncture about four inches. Deep injections (1:200) may be made into the aponeurosis of the external oblique, but the pain of incising and dissecting this and the deeper layer is not severe. As a rule deep injections should be avoided, for this and other obvious reasons.

Eucaine is less toxic than cocaine, but the anesthesia is slower in onset, and of less intensity, yet thoroughly efficient. It does not decompose on boiling, and can be used in two-per-cent solution. Anesthesia is complete in about four minutes and lasts from twenty minutes to an hour. It not unusually causes sloughing, which constitutes the serious objection to its use in aseptic cases; while in a few instances it has produced constitutional symptoms of considerable danger. Hemorrhage is more abundant when eucaine is used, as it produces hyperemia, and the injections are also a little more painful than cocaine.

General Anesthetics.—The administering of a general anesthetic is also a practical matter. Timidity or bad judgment of the anesthetist is most likely to result in an imperfect or too profound narcosis, and consequent death on the table or postoperatively.

It is most essential that the man at the mask should be reliable, experienced, know how much to give and when, how not to give too much, know when to give stimulants, and when to warn the surgeon to cease his work.

All mixtures such as the A. C. E., ether, benzine, chloroform, etc., should be avoided. Their general use has not inspired confidence in their absolute safety; their great and unequal volatility and other bad qualities seem to overwhelm some patients, producing great pallor, frequent pulse, or interference with respiration. Ether and chloroform, according to which is indicated, are the preferable anesthetics. In all operations the patients should be kept warm by sufficient and suitable coverings, hot-water bottles, etc.

Regarding the Choice of Anesthetics.—In general ether is to be preferred to chloroform, as it is safer. Nausea and vomiting are slightly less after chloroform, and this is of some importance in hernia operations. Sometimes vomiting after an operation is due to iodoform absorption, so iodoform gauze, powder, etc., should never be used. Fifteen minutes before chloroform is administered one should always inject strychnine, $\frac{1}{40}$ grain hypodermically. With this stimulant to the respiratory and cardiac centers the patients will, as a rule, if the chloroform is administered properly, take the anesthetic well. Whenever it is possible, for the day preceding an operation for hernia, safe diet should be insisted upon, and the bowels should be moved by a laxative, followed by an enema, which is given several hours before anesthesia, so as to thoroughly empty the lower bowel of lumps of feces. Never give morphine before administering chloroform, as it may put the patient in great danger; it obscures the symptoms and signs during anesthesia and sometimes subsequent to it.

A weak, dilated, and laboring heart are contraindications against chloroform.

Chloroform to be most successfully administered should be given a drop at a time on a

thin gauze inhaler. One drop a second is enough in most cases, and after the patient is under one drop every two or three seconds or even less frequently is sufficient to maintain anesthesia for a hernia operation.

The anesthesia must not be hurried, and the patient is told to breathe naturally.

If the patient does not take chloroform well, change to ether.

The best method of giving chloroform is to commence with a drop a second on an Esmarch inhaler, which is brought at once close to the face. This is about as quick as any other method, and is positively the safest. By using the drop method the anesthetist will be very seldom required to use means to resuscitate.

Chloroform should not be used at night operations. This caution does not apply when the incandescent electric light is employed. Use chloroform when ether has failed, or when there is a record of deleterious effects during a previous anesthesia with ether. Ether is contraindicated in bronchial and tracheal catarrh, constant coughing with asphyxia, irritation of the air-passages, violent continuous nausea, and in marked kidney disease, when chloroform or a local anesthetic must be used. Chloroform or ether should not be used in exceptional instances (see Local Anesthesia).

Ether is best given by the drop method (Prince) somewhat the same as chloroform, except that the Esmarch inhaler should be covered with twice the thickness of gauze covering used for chloroform, and the drops are allowed to fall more frequently on the mask—two or three drops to the second till the patient is under, when a drop in a second or two seconds is sufficient to maintain perfect anesthesia. As a rule inject hypodermically fifteen minutes before beginning anesthesia one-quarter of a grain of morphine. By this means less ether is required, and a perfectly satisfactory anesthesia is obtained.

Anesthesia and Taxis.—Simple taxis having been tried, except under those conditions known as contraindicating it, and having been found unsuccessful, it should be resorted to under general anesthesia, preferably ether, except in those cases where a general anesthetic cannot be used without danger. In the latter instances operate at once, using local anesthesia. Before using taxis under anesthesia, make preparations for operation, so that in the event of failure to reduce the protrusion herniotomy and radical operation can be done at once. By this means time is saved, the danger lessened, and the patient avoids a second anesthesia.

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*THE TREATMENT OF GONORRHEA IN WOMEN, WITH SPECIAL REFERENCE TO URETHRITIS.**

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The importance of this subject is very great, because of its well known frequency even among the innocent, and because it is responsible for a vast amount of suffering. When untreated or imperfectly treated it becomes in the unchaste a long-standing evil in the community, while among those leading an upright life it becomes one of the common causes of sterility or of postpuerperal disorders. In the form of salpingitis it may entail lifelong suffering from recurrent attacks, accompanied by localized peritonitis. It frequently leads to capital mutilating operations, endured as a choice of evils after prolonged ill health.

Admitting the unpleasant character of the whole matter, and the fact that many of us do not care to cultivate this class of practice, it yet remains that no physician who accepts obstetrical or gynecological patients can escape meeting the disease, even among his best clients. It follows therefore that he cannot escape the responsibility for its proper treatment.

The results of the management of the disease are often unsatisfactory. Definite cure may be very hard to obtain. This can hardly be better shown than by the side-lights in the recent controversy† between Neisser, a world-renowned authority, and Behrens, who has unlimited experience through his official

*Read before the Section on General Surgery, College of Physicians, Philadelphia, Oct. 12, 1899.

†*Berliner Klinische Wochenschrift*, 1898, Nos. 6 and 9.

connection with the regulation of prostitution in Berlin. The difference arose owing to the skepticism of Behrens as to the value of bacterial examinations in determining whether or not the disease is cured, and as to the usefulness of germicidal methods of treatment. He thinks he has given them a fair trial, and returns with some disappointment to clinical diagnosis and to general plans of treatment, the latter including, in the male, rest, ice, and mild astringents. Such a controversy could not arise were the results of treatment giving general satisfaction. They are, however, better now than formerly, when the disease was considered to be chiefly vaginal, and when vaginal injections were relied upon.

Two points must be prominently kept in mind in considering the matter of treatment. The first is that the disease is a formidable one to eradicate thoroughly, requiring the physician to be alert and in earnest. The second point is that the seats of infection are various, not the same in every case, and some of them are out of reach of treatment which consists only of balsams by the mouth and the vaginal douche.

The disease therefore must be attacked, sooner or later, in its various strongholds, which are, besides the vulva, the urethra and its long tubular glands, the vulvovaginal glands of Bartholin, the cervical canal, and lastly the body of the uterus and the tubes, should they become invaded. The difficulty in curing the disease justifies the demand for the most important part of the treatment in the acute stage, namely, rest.

Rest in bed during the continuance of the acute symptoms is, fortunately, much easier to secure in important cases in women than in men, as they find it easier to account for an illness without exciting suspicion. Attention to the bowels and to diet must be directed along well known lines.

No treatment can be successful which fails to take into account the important fact that there are several points of infection. For example, if the vulva and the cervix were freed from disease and no attention were paid to a urethritis, the case would remain uncured. If no disease remains in the urethra the patient may continue to be permanently infected, if on either side of the vestibule the gland of Bartholin pours out through its infected duct a quantity of bacteria-laden fluid every time pressure is made, or the function of the part is aroused. It is owing to the difficulty in reaching thoroughly the various seats of infection that the best directed treatment may be tedious or disappointing, and for a similar reason the routine treatment of the past has never been satisfactory.

There is quite a variety of opinion as to the frequency of the involvement in the various localities. It is now known that primary gonorrhea of the vagina in the adult is rare, and some doubt its existence. Infection of the urethra probably occurs in nearly all acute cases, though its intensity may be relatively slight, and the duration short.

Horand,* in examining over 5000 women, chiefly prostitutes, found the urethra to be the most frequent seat of the disease. Wertheim in one series of examinations found it involved in every case. The next most favored locality is the endometrium of the vaginal portion of the cervix uteri. Bumm† studied fifty-three cases from the very beginning through five months, and found infection here in seventy-five per cent of the individuals, while the uterine cavity became involved in only fifteen per cent, and the tubes in three and a half per cent. In the acute stages no treatment can be wisely directed to these special localities. The patient should be in bed. Great attention should be paid to external cleanliness, to the cleansing of the hands, and the immediate destruction of all soiled dressings. There should be frequent mopping of the parts with weak carbolic acid, strong boric acid, or creolin or permanganate solutions. Three or more times a day the same solution may be used in a copious hot vaginal douche. If greatly swollen and inflamed, the lesser and greater labia may be separated by a thin layer of lint or cotton wet with dilute lead-water containing opium. Water should be taken freely by the mouth, and such medicines as will keep the urine as aseptic as possible (salol or boric acid) and will serve to allay bladder and urethral irritation. As soon as the tenderness has subsided sufficiently to allow the use of an instrument, treatment must be directed to the several localities involved. The most important of these is the urethra. Cleansing injections of boric acid solution may or may not be used. They should be followed by suppositories of ichthyol or iodoform inserted into the canal. At the International Congress at Rome in

* *Lyon Médical*, lix, 241.

† *Frauenarzt*, 1891, vi, 345.

1894 Jullien* strongly recommended ichthyol and glycerin 1 to 5 or 1 to 10. He applies it upon a wire carefully wrapped with cotton for three inches. After insertion of this into the urethral canal, pressure from the vagina will distribute the material into the urethral folds and depressions.

Skene (Diseases of Women, page 823) says that the most efficient treatment of acute urethritis is to wash out the urethra with a fluted reflux catheter two or three times a day, and then introduce a suppository of iodoform in cocoa butter or of bismuth subnitrate in cocoa butter. After the disease has assumed a chronic form, as it frequently has done when first seen by the physician, direct applications through the urethral speculum are of very great service. Nitrate of silver 1 to 5 per cent may be applied under direct vision to the reddened and inflamed or ulcerated patches, which will be found usually at one end or the other of the canal, rather than in the middle. Injection methods may be utilized as in the male, but care must be taken not to inject too much fluid at once, so as not to enter the bladder. The average urethra is only an inch and three-eighths long, and holds only about fifteen drops of fluid when not distended. Skene uses a pipette which goes over the meatus and not into it. Additional safety for the bladder may be secured by using an injection only when the bladder is full, so that any fluid which passes into it may be at once freely diluted. When the neck of the bladder is also diseased a very weak silver nitrate solution, one grain to the ounce, may be used in sufficient quantity to pass through the urethra, but as this is uncertain and may carry discharges with it, a better plan is to make direct applications through the speculum.

Along the floor of the urethra lie two tubular glands, from a half to three-quarters of an inch in length. Their orifices lie just within the meatus. When these once become thoroughly infected they may remain so for months, in spite of all treatment which does not involve direct applications with a probe to their interior. If nitrate of silver so used is not effective, it may be necessary to slit them up. Treatment must be continued until the gonococcus can no longer be found in the discharges. Before a case can be pronounced cured, however, all the chief seats of infection must be shown to be free from the organism if this method be relied upon. This becomes rather a tedious process. It is hardly necessary in these times to insist that throughout the treatment all instruments used must be carefully boiled.

In the use of the urethral speculum, even in chronic cases, much gentleness must be used. It is easy to irritate or to abrade the mucous membrane to the point of bleeding. Only small sizes (8 millimeters, or at most 9 millimeters) should be used. As frequently sold, these instruments have sharp edges at the vesical end, which are very objectionable and scrape badly after the obturator is withdrawn.

To the vulvovaginal glands no direct treatment can be advantageously applied in the acute or subacute stages. Injection of the ducts has been recommended later. If recurrent abscesses form in chronic cases the whole gland must be dissected out. If all of the sac wall is secured primary union will follow catgut suturing, which obliterates the pocket. Otherwise a troublesome gauze packing must be used till the pit closes from below.

The infected cervix must be treated by the careful removal of the tenacious discharge by cotton-covered forceps, followed by the topical use of ichthyol, protargol, nitrate of silver, or other appropriate solution. The probe must never be introduced into the uterine cavity unless this is already involved. Indeed, a probe should never be introduced into any uterine canal without strong reason. It is normally sterile, and should be allowed to remain so.

A copious vaginal cleansing douche is to be given before the treatment above outlined is used. Then after the cervix and urethra have been treated, ichthyol and glycerin 1 to 10 should be liberally applied, and a light vaginal pack of borated or iodoform gauze should be inserted to keep the surfaces apart. This pack can be best applied in the knee-chest posture, using the Sims speculum, as in no other position is so little pain caused, and none so thoroughly balloons the vagina, at the same time smoothing out its folds.

In this brief paper there is no opportunity for the discussion of the treatment of the conditions which result from infection of the uterine mucosa or of the tubes and peritoneum.

**Dermatologia e Sifilografia*, p. 27. Transactions.

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The Therapeutic Gazette

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Leading Articles.

THE SYMPOSIUM ON PUERPERAL ECLAMPSIA.

In this issue of the THERAPEUTIC GAZETTE we have published a symposium on this important subject that cannot fail to prove useful and instructive to our readers. The contributors are men whose practical experience and study have well qualified them for the preparation of what they have written, and their teachings are well worthy of attention. The fact that eclampsia is so largely a preventable disease and yet is constantly met is evidence that more care should be paid to the subject than is generally done.

THE MODERN TEACHING OF THERAPEUTICS.

While there are many persons, in and out of the medical profession, who are under the impression that our methods of treating disease have not advanced as rapidly as have other departments of medical science, those who have made even a superficial study of the subject thoroughly appreciate the fact that this is untrue and that therapeutics has not only advanced, hand in hand with collateral departments of medicine, but in some instances has maintained the lead which it acquired before these various departments possessed the importance that they do to-day. Thus it is, without doubt, a fact that a number of conditions and diseases were, and are, successfully treated without the physician being enlightened in regard to their etiology and pathology, and while very often the application of the remedy is not followed by such sudden and brilliant results as follow the application of the knife, the results when obtained are very frequently more lasting and certain.

As a matter of fact, there is no department of medicine which has shown an activity similar to that of therapeutics, and while it is undoubtedly true that much of the literature dealing with the treatment of disease which has been published within the last few years is fleeting in its value and even utterly valueless, a very large amount of useful material has been winnowed out and separated from the tares. It is only when one stops to compare his therapeutic possibilities of to-day with those of fifteen or twenty years ago that he appreciates the great advances which have been made. These remarks are made, not because we believe in therapeutic optimism, but because on the other hand we do not believe in therapeutic pessimism. We all must recognize the fact that undue enthusiasm is out of place, but also that it is ill-fitting for us to feel discouraged because we are not able to remedy conditions which possibly are irremediable, either because they cannot be cured or relieved by reason of their very nature, or because our knowledge concerning the disease itself is as yet so crude that rational methods cannot be introduced.

With the improvements which have been made in the methods of treating various diseases there has been an equal improvement in the method of teaching that branch which for years has been known in the roster of the medical schools as "Materia Medica and Therapeutics." Perhaps the majority of practitioners to-day look back upon the lectures which they heard under the title of "materia medica" as being the driest and most uninteresting of their medical curriculum, and increasing experience has confirmed them in the belief that much of the information which was presented for their mental digestion in

these lectures has proved itself utterly useless to them in their professional career. The day is not long passed when the professor of materia medica lectured behind numerous bottles and glass jars containing dry and wet materia medica specimens, and took more pains to impress upon his pupils that kino was the inspissated juice of the *Pterocarpus Marsupium* than he did to tell them that kino, in the form of a tincture, was sometimes employed as a vegetable astringent in cases of diarrhea. Nor is it long since the professor of materia medica grew rapturous over his description of the difference between the appearance of the *Rosa Gallica* and *Rosa Centifolia*. The day in which this method of teaching was adhered to is not long passed in the matter of time, but surely it is of the past in the sense of actual progress.

At the present time the demands which are made upon the progressive teacher of therapeutics and materia medica force him to devote almost no time whatever to the description of the botanical and geological origin of the various medicinal substances, and he really ceases to lecture upon these things in view of the immense amount of more valuable information which he can impart to his class, and because under present conditions a physician no longer has occasion to handle crude drugs or to prepare pharmaceutical products from them, all such manipulation being done by manufacturing chemists and competent pharmacists. It is very much more important to-day that the doctor should know the appearance, taste, and other qualities of tincture of digitalis than that he should know the appearance of the digitalis leaf, and still more important that he should have clear and definite ideas as to the therapeutic value of digitalis, its contraindications, and the conditions which its administration will best remedy.

It is of course true, on the other hand, that a physician who knows medical botany has the advantage of a liberal education over and above what might be called a practical medical education, and if an individual has a true bent in this line, or the time and opportunity to obtain this learning, it goes without saying that as all learning of every kind is advantageous, so is a knowledge of medical botany of value. It is not, however, of value to the practicing physician of the present decade except as an accomplishment. In the belief of the writer of this editorial, the time is not far distant when further modifications than those already made in the methods of teaching materia medica and therapeutics will take place.

We are confident that the proper method of teaching therapeutics is not from the drug to the disease, but rather from the disease to the drug. In the sick-room the doctor is not placed with a series of drugs of different kinds in front of him, but he has before him a patient suffering from a given complaint, and after making his diagnosis as to the condition before him, he then must pick out from his mental array of drugs that remedy or remedies which he knows are indicated in the case.

In other words, the doctor should be taught not so much that aconite is indicated in such and such diseases, but that such and such diseases indicate the employment of aconite, and then his teaching will be in the same line as his practical experience which follows it. We believe that every professor of therapeutics should devote himself to a thorough consideration of the clinical application of the remedies upon which he lectures, after having first, it may be, thoroughly explained to his pupils the so-called physiological action of the remedies of which he is speaking. We also believe that whenever possible he should illustrate any didactic lectures which he may give by subsequent medical bedside clinics in which the practical application of the various drugs upon which he has lectured is demonstrated as clearly as possible to his class. Again, it is possible by this means to render the course of materia medica and therapeutics one of the most interesting and practically useful courses in the medical curriculum, and very often facts in regard to the physiological action of a remedy can be more readily impressed upon the mind of the student by considering such physiological action, in juxtaposition with a consideration of the treatment of disease, than can be done if the physiological action is first described and then the clinical application is given without there being any connecting link between them.

The student and the physician of to-day, not only in the department of therapeutics, but in nearly all the departments of medicine, is left too much to the difficult task of joining together scientific facts which he may be taught with clinical conditions which may be pointed out to him. On the one hand he receives the results of valuable scientific research; on the other he sees what apparently is too often mere empiricism; and the teacher

who successfully points out the fact that these two masses of information, so to speak, are really joined together, performs his function more successfully than he who does not. Indeed, we believe that it is the function of the teacher of to-day, in therapeutics in particular, to sift the useful facts of science from the useless, but nevertheless interesting, facts of science in order that his pupils may have presented to them for their mental digestion only such particles of mental pabulum as they need for the proper growth of their medical knowledge. It is well enough for them to take up abstract and difficult scientific propositions after they have obtained their degree. Too often at the present time, in the enthusiasm of teaching, the original investigator is tempted to digress from the hard practical facts of every-day medicine and lead his students into by-paths which, while they may be roads to knowledge, are nevertheless "side-tracks" to him who as yet must travel the straight and what may be called the fundamental road of medicine. We feel confident that most of the practitioners of to-day will agree with us in this statement of our views as to the proper means by which this, perhaps the most important, branch of the medical curriculum is taught.

THE RELATIONSHIP BETWEEN THE OVARY AND MAMMARY GLAND.

With the advances which have been made within the last few years in the use of various glands in therapeutics, it has been claimed by certain physicians that the employment of ovarian extract on the one hand, or of mammary gland on the other, was capable of producing certain influences upon these organs, the mammary gland affecting the ovary, and *vice versa.*

As long ago as May, 1896, Beatson, of Glasgow, exhibited an extraordinary case in which an inoperable and recurrent cancer of the breast had disappeared apparently as a result of the removal of both ovaries and the administration of thyroid extract; and after him, Stanley Boyd, of London, performed oophorectomy alone, without giving any thyroid, to determine what effect this operation would have upon mammary carcinoma.

In the *British Medical Journal* of September 30, 1899, Boyd records the results which he has obtained, both with and without the use of thyroid, after oophorectomy in his first and later cases. He believes, notwithstanding the fact that he has employed thyroid gland in addition to the ablation of the ovary, that it cannot be essential, because as great success can be obtained without it as with it, and he does not believe that there is the slightest evidence that the thyroid gland exercises a favorable influence in cancer. It is true that Page and Bishop about eighteen months ago recorded a case in which the administration of thyroid to a woman with mammary cancer seemed to produce an arrest of the growth, but notwithstanding this single individual instance he has little confidence in the value of thyroid under these circumstances. As the result of a study of his cases he has reached the following conclusions:

1. The ovaries removed have usually seemed healthy.

2. That results are not uniform: some are successful, some partially so, some quite unsuccessful. Non-success seems to be connected with: (1) presence of much cancer; (2) affection of bones and viscera; (3) long cessation of menstruation, or rather with the ovarian changes indicated by this; and (4) cachexia. But there is something else required to account for some of the failures.

3. *As to Type of Disease.*—No really acute case has shown the maximum of benefit; but for six months marked improvement occurred in his second case, aged thirty-seven, in whom the total known duration of the disease was two and a half to three years. The most successful cases were of four to seven years' growth up to the oophorectomy.

4. *Age.*—The extreme ages of the patients were: thirty-three in Beatson's No. 1; forty-nine in Herman's No. 2.

5. *Relation to Menopause.*—This patient of Herman's had for six months been irregular, and for three months had seen nothing. This is the only case known to him of improvement from oophorectomy apparently after the menopause.

6. *Influence of Seat of Secondary Nodules.*—Growths starting from mammary epithelium are not uniformly affected by oophorectomy. Speaking generally, those in the skin and subcutaneous tissue are most readily affected by oophorectomy; then infected glands, then growths in the breast itself. Muscle nodules grow slowly, and he knows of no proof that growths in bones or viscera are affected at all. Even neighboring growths in the *same* tissue do not disappear at the same rate.

7. *Duration of Action.*—Sufficient time has not yet elapsed to determine whether any of

these disappearances of cancer may be permanent. His first case showed no sign of relapse when he saw her twenty-eight months after oophorectomy. In Dr. Beatson's case relapse began at twenty-five months. When relapse occurs there is a great tendency for nodules to reappear upon old sites, as if some cells had remained dormant at these spots. In some cases—for example, Dr. Beatson's—the recurrences have developed very slowly, as if held in check or resisted by the tissues; and Boyd thinks he has noticed the same retarding influence in the case of growths which have not disappeared after an oophorectomy. But it is, of course, impossible to be certain of this.

8. *Mode of Disappearance.*—Dr. Beatson showed that diminished vascularity of cancer nodules, coupled with loss of pain, was the earliest effect of oophorectomy. By excising shrinking nodules he demonstrated that they were undergoing rapid fatty degeneration.

9. *Effect upon Cancers Other than Mammary.*—Uterine cancer has in several instances been treated by oophorectomy. Diminution of hemorrhage and of sepsis have been the most favorable results obtained. And yet one would have supposed that the association of the ovary and uterus was closer than that of the ovary and breast.

So far as Boyd can ascertain from the scanty material at present available, these are the chief points in the case which he has to lay before us. The practical importance of the matter is self-evident. He thinks we will agree with him that in some cases of recurrent cancer of the breast removal of the ovaries induces atrophy of the cancerous growth. The main question he wishes to submit to us is how this may be brought about. He would particularly ask for suggestions as to the experimental solution of the problem. There is hardly anything in the abdomen which is not removed, intentionally or unintentionally, nowadays; and there can be no doubt that a careful noting of results of operations would convert many of them into useful experiments.

His own working hypothesis has been that the internal secretion of the ovary probably exercises an important influence upon all the cells of the body; that this internal secretion may vary in quality, pathologically if not physiologically; that when varied in some unknown way the ovarian secretion favors the growth—possibly even the action of the cause—of cancer, influencing either the invading epithelium or the resisting mesoblastic tissues. The removal of ovaries of which the secretion is thus faulty would leave the tissues unhampered, and might turn the scale in their favor, at least for a time. On the other hand, the removal of ovaries secreting normally would have no effect upon the cancer present.

It is interesting to note that a prominent member of the medical profession in this country, Prof. E. E. Montgomery, of Philadelphia, has recently published an interesting paper in which there is a consideration of this line of treatment. Collateral information in regard to this subject is also embodied in an interesting and brief article by Routh in the *British Medical Journal* of September 30, 1899, which will be found in our Progress columns of the current month.

SUITABLE CASES FOR HEALTH RESORTS.

Several months ago we called attention, editorially, to a statement made in the *Denver Medical Times* concerning the rules which should govern physicians who are about to send patients to health resorts for pulmonary tuberculosis. In that editorial we pointed out the necessity of sending only those cases in which the disease was developed to so slight a degree that there was a strong probability of recovery under proper climatic influences, and we endeavored to emphasize the fact that it is nothing less than cruel to send a patient to a health resort when his pulmonary condition is such that recovery is impossible, the only result being that he spends his remaining energy and funds in a futile struggle for the unattainable. Our attention has once more been called to these facts by an interesting article which has appeared in a recent number of the *Medical News* by Dr. Cobb, a past assistant surgeon in the United States Marine Hospital Service. In the course of this article, speaking of the arid region of the United States in the treatment of pulmonary tuberculosis, Cobb calls attention to the fact that it is absolutely necessary when tubercular patients go to health resorts that these places should be provided with suitable comforts for an invalid, both in the way of beds and food, and should be surrounded by certain hygienic conditions. Then he calls attention to another point often ignored, namely, that even when a patient goes to a place where the mean temperature is fairly low, he should be provided with warm clothing, since the "mean temperature" does not in reality represent

the atmospheric conditions to which he will be exposed. In many health resorts the temperature in the sun is quite high and in the shade quite low, and there are very great variations between the temperature of the day and night.

Again, he points out that in many of the smaller resorts for consumptives suitable disinfection is not carried out, and he noticed in a number of instances in his experience that the bedding frequently had the odor of perspiration which is so peculiar to consumptives; that the beds were supplied with cotton quilts which never were washed; and that not infrequently quantities of dry sputum were found upon such quilts. To use Cobb's words: "One should never believe that the room offered to you has been properly disinfected or that a consumptive has not preceded you." It is perfectly possible, as he says, for a patient to visit such a resort with a mild infection, and to have superimposed upon it a more malignant one. We are quite certain that frequently patients are exposed to this possibility, and in a given case we would insist that the room be carefully disinfected before it is occupied, even if it is true that a tubercular patient has not occupied it recently. This disinfection can do no harm, and may do much good.

THE USE OF SALINE TRANSFUSION FOR BURNS AND SHOCK.

It is not many years since the employment of ordinary saline solutions, hypodermically or intravenously, was first urged upon the general practitioner by those who had had experience in this line of treatment. Each year that has passed since these early recommendations has served to emphasize the great value of this therapeutic measure, and our columns have again and again contained reports of cases of infectious diseases, of cases of toxemia like puerperal eclampsia, uremia, and diabetic coma, in which excellent results have followed this method of treatment.

In the spring of 1898 the writer of this editorial also called attention to the results which had been obtained by Tommaseli in the treatment of severe burns by hypodermoclysis and intravenous injections. Tommaseli believed, from clinical observation and experiment, that a large part of the lethal influence of burns depended upon toxemia, and on putting his belief to the practical test he found that artificial saline injections saved life. So, too, in this country Bardeen, as a result of a histological study of the tissues of several children who had died from burns, came to the conclusion that toxemia was an important factor in causing death, and his results indorsed the proposition of Tommaseli in regard to this method of treatment. Even if the toxemic condition is not directly improved by saline injections into the subcutaneous tissues or veins, there is still another one in which this method of treatment may be of great good, in that surgical shock is nearly always present as a result of severe burns and scalds, and we have reasons, both theoretical and practical, for the belief that in shock a condition of profound relaxation of the blood-vessels exists, so that arterial pressure is very low and the vital centers are not properly supplied with blood.

While we know that intravenous injection does not necessarily raise blood-pressure, we also know that this method of treatment is capable of readjusting the circulation to such an extent that the evil manifestations of vasomotor paralysis are set aside. It seems to us, therefore, that in treating cases of severe burns or scalds, this method of procedure should not be ignored, but should be actively employed, since it can do no harm, and may do much good.

THE USE OF COCILLAÑA AS AN EXPECTORANT.

From time to time new drugs derived from the mineral or vegetable kingdom are brought before the medical profession, some of them quickly obtaining a reputation which they do not deserve, and then speedily losing their fictitious repute, while others climb more slowly into professional favor and remain popular with a certain number of practitioners. Among the latter class may be mentioned the drug cocillaña, which was first brought to the attention of the profession as a medicament by Professor Rusby, the well known botanist of New York, who, in a visit to Bolivia in 1886, found that this plant was used for expectorant purposes. In very full doses it, like ipecac, produces emesis. It is evident from the reports which have been made upon it, notably by Stewart and Wilcox, that the drug may be employed as a stimulating expectorant for the purpose of aiding the patient in getting rid of bronchial secretion, and that under these circumstances it is capable of producing very

excellent results. As this substance has not received the wide application which its therapeutic properties would seem to deserve, we have called attention to it in order that it may be more largely tried, and that more definite conclusions as to its exact value may be reached.

THE PREPARATION OF CATGUT FOR SURGICAL PURPOSES.

The lack of uniformity in the preparation of catgut for surgical operations attests more strongly than could any other single circumstance the difficulty attendant upon the producing of strong, elastic catgut which is able to take a close knot without breaking and to hold it, and which, at the same time, is absolutely sterile. Although the gut which is sold in commerce is sometimes sterile, owing to the processes to which it has been subject during the course of its manufacture it generally contains germs. As a rule it is non-pathogenic, but exceptionally, as in the case of animals perishing of anthrax, both the germs and spores of this virulent disease are found in the gut, and are capable of cultivation from it.

By far the most complete and satisfactory study of catgut preparation is that contributed by Minervini in the September number of the *Deutsche Zeitschrift für Chirurgie.* This author has investigated not only the bacterial life of unprepared gut and that which has been subject to practically all of the many well recognized methods of sterilization, but has tested the tensile strength of the gut before and after preparation, has investigated its brittleness and its capacity for taking knots, and notes the effects of the various reagents employed upon the permanency of the gut in the tissues.

First, in regard to the tensile strength of the gut, he shows that alcohol, even as weak as seventy-five per cent, does not materially change it, but that a weaker solution softens the gut and greatly lessens its strength. Absolute alcohol makes the gut so hard and stiff that it does not lend itself readily to being tied. Chloroform, ether, oil of turpentine, and xylol have similar effects. Glycerin moderately weakens the gut. Fatty substances, at ordinary temperatures, such as olive oil, castor oil, or oil of juniper, make the gut somewhat more elastic than in its dry state and do not lessen its strength. Moreover, the knots are readily fixed and held. Formalin, in one-, five-, and ten-per-cent solutions, diminishes the tensile strength, but not very greatly, and gut prepared in this manner can be easily tied. Chromic acid in strong solution lessens the strength of the gut; in strengths of one-half to two per cent it diminishes the strength, but leaves it in excellent shape for ligatures. The best solution is one-half of one per cent.

The tabulations as to the effect of heat upon the gut are extremely instructive. Thus, boiling alcohol does not lessen the strength of the gut but makes it so stiff that knots are not readily tied. A weak solution of alcohol markedly diminishes the strength; the same may be said of boiling ether and chloroform. Turpentine, xylol, and other media which boil above 100° C. markedly weaken the gut, but if the water has been previously removed, this weakening effect is far less marked. Gut which was laid in four-per-cent formalin solution for twenty-four hours, then in running water for twenty-four hours, and finally boiled fifteen minutes, was much weaker than the raw gut; nevertheless it still preserved sufficient strength for use, excepting the finest sizes. Gut thus prepared is easily tied, and the knots do not exhibit a tendency to loosen.

A further series of investigations was conducted with the idea of determining the effect upon the strength of the gut of heat under pressure.

As a result of these experiments, Minervini concludes that catgut can withstand dry heat up to 150° C. without alteration—at or above 160° C. marked alteration occurs; that water always weakens the gut, softening and swelling it at normal temperatures, and completely disorganizing it at the boiling temperature; that this injurious action of water upon the gut may be prevented by the influence of chemicals — namely, formalin and chromic acid—but that gut thus treated is still injuriously affected by water, but to a much less degree. Chemicals which boil at a temperature lower than 100° C. do not alter the gut provided they contain no water. In different fluids which boil at a temperature higher than 100° C., such as xylol, cumol, etc., provided the gut has been entirely freed from water, it is not materially altered until the temperature reaches 150° to 160° C. Above this temperature profound alterations occur.

As to the efficiency of the various antiseptics in accomplishing absolute sterilization of the gut, alcohol, ether, chloroform, and carbolic acid solutions at the ordinary tempera-

ture were found absolutely unreliable. Oil of juniper rendered gut infected with staphylococcus germ-free after three days. To destroy the anthrax bacilli, however, required thirty days. Bichloride solutions, 1:1000, in water are efficient both against anthrax and pus germs in one hour. Solutions of similar strength in alcohol or ether require twenty-four hours to exert as marked an effect. A one-per-cent watery solution of formalin destroyed the staphylococcus in six hours, and twenty-four hours' exposure to a four-per-cent solution was required to destroy the anthrax bacilli. One-half-per-cent solution of chromic acid destroyed the staphylococcus in one hour, and one-per-cent solution was required for six hours against the anthrax bacilli.

In oil of juniper heated to 130° C. the infected pieces of gut were entirely sterilized in thirty minutes. Carbolic solutions in alcohol were found entirely unsatisfactory. Catgut soaked in a four-per-cent formalin solution for twenty-four hours, then in flowing water for twenty-four hours, and finally boiled in distilled water for fifteen minutes, was absolutely sterile, as was also the gut subjected to the same process with the exception that chromic acid, one-half per cent, was substituted for the formalin.

The author concludes from his investigations as to the sterility of catgut that whether the heat be dry or conveyed by means of alcohol, ether, chloroform, etc., exercised under normal pressure, the germs and their spores are only destroyed when a temperature of 140° to 150° C. is reached and is maintained for some hours. Since at about this temperature alterations of the gut occur, the aseptic preparation of the gut is not practicable.

Those methods which depend upon the action of carbolic acid or of the aniline colors are always unsatisfactory.

If properly employed, and for a sufficient length of time, sublimate, formalin, chromic acid, and oil of juniper secure absolute sterility.

An investigation into the absorbability of the gut showed that the commonly accepted ideas upon this subject are erroneous, in dogs at least. The gut was found after four months unabsorbed in the tissues. Gut prepared by dry heat, oil of juniper, and formalin is much more rapidly absorbed than that subjected to sublimate and chromic acid methods. It is clearly shown that the preparation of a strong and yet absolutely sterile gut is an extremely difficult matter unless antiseptics are employed, and that these antiseptics always retard the absorption of the gut.

Minervini, as a result of his elaborate research, holds that surgeons who use but one ligature material should prefer silk; that those who wish to employ both materials should use catgut for sutures of the mucous membrane, particularly in deep cavities difficult of access; that catgut should also be preferred to silk in sutures of the skin.

Though most surgeons will not agree with this contention, holding that even if catgut be absorbed slowly its ultimate disappearance is to be preferred to leaving a foreign body permanently at the site of the wound, they will, if they believe in the accuracy of Minervini's observations, and these are in accord with those of the majority of observers who have studied this subject, adopt either the oil of juniper, formalin, chromic acid, or heat method of preparing their gut.

FRACTURES OF THE FEMORAL NECK.

Although many treatments have been suggested as efficient in procuring union after fracture of the neck of the femur, hospital records and the wards of all large charitable institutions will abundantly prove that none of these methods are successful in certainly a very large number of cases. Senn advocated for intracapsular fracture the application of a plaster-of-Paris cast provided with a pad and screw, by means of which the bones, once having been brought into position by traction, could be so held until union took place. Though his paper on this subject, with reports of the cases successfully treated, appeared six or eight years ago, his method has, at the best, received a very limited trial, nor is there any evidence to show that it is generally successful. The same may be said of all the methods proposed. Hence, when Ruth reports in the *Journal of the American Medical Association* seventeen cases of unquestioned fracture of the femoral neck, occurring in persons ranging from twenty-five years to almost the extreme limits of age, treated by Maxwell, Kinnaman, Jenkins, Fagers, Coulter, and Ruth, and notes that in fifteen of these union was obtained with useful limbs, whilst the only failures to secure union were in two cases that absolutely refused to have the treatment carried out, his communication is entitled to consideration and respect.

After the injury he adjusted the fragments by flexing the thigh upon the abdomen and relaxing the psoas and the iliacus, bringing them above the fracture line, thereby preventing them from being permanently caught between the fragments. This position also relaxes nearly all of the external rotators. Then vertical traction is made of the shaft of the femur, which now stands at right angles to the trunk while a moderate eversion is being maintained. Next the leg is abducted to the normal line, and extension is made in the long axis of the trunk while an assistant makes traction one-half to two-thirds as strong upward, slightly outward and forward from the upper end of the femoral shaft. These manipulations should be made by firm, steady traction, not by jerks, which is to be made continuous by Buck's extension, with a weight of from ten to twenty pounds. Binders' board should then be molded to the upper inner aspect of the thigh, over which a band of muslin four to six inches wide should pass outward and slightly upward and sufficiently forward that the weight from the pulley shall overcome the internal pull of all the rotators and adductors, and at the same time raise the lower fragment to its normal level. The weight on this lateral pulley will be from five to fifteen pounds. The side of the bed corresponding to the injured side of the patient must be raised enough to prevent the individual from being drawn out of position by the lateral pulley.

In the report of cases it is specifically stated in at least three instances that the fracture was intracapsular; in eight others it was at the femoral neck, and therefore must have been intracapsular.

If in the hands of the general practitioner this modification of the customary treatment produces results in any way comparable to those reported, Ruth will have done a great service in lessening the heavy burdens of a crippled old age.

POSTANESTHETIC PARALYSIS.

It exceptionally happens after a general anesthetic has been given, quite aside from the form of surgical intervention which may have been required, that when consciousness is regained there will have developed a paralysis which, at least by the patient and his friends, is likely to be attributed to the ether or chloroform or whatever agent has been administered to occasion unconsciousness. Such palsies are classified by Mally, who has contributed an excellent paper on postanesthetic paralysis to the *Revue de Chirurgie*, No. 7, 1899, as central, hysterical, peripheral, and reflex.

The central palsies follow directly upon the anesthesia, and are due with few exceptions to cerebral hemorrhage. It would not be unreasonable to suppose that such an accident — *i. e.*, apoplexy—would be a fairly common sequel or accompaniment of an anesthetic, since a large number of surgical patients are by vascular degeneration ripe for hemorrhage from even the most trifling causes. As a matter of fact, however, apoplexy during anesthesia is extremely rare, hence may fairly be considered purely accidental and in no way attributable to the anesthetic agent used.

As to the postanesthetic hysterical paralysis, this also is extremely rare, and is to be attributed rather to the moral shock than to any action of the anesthetic employed.

Peripheral palsies are the most frequent and important of the various groups. The commonest of these is a palsy of the upper branches of the brachial plexus, and this is generally caused by the elevation of the arms such as occurs in the Trendelenburg position; for with the arms thus elevated there is a drag upon the roots of the plexus, and particularly the upper ones, and these are, moreover, put at a sharper angle than the ones which lie below, this angling occurring at the transverse vertebral processes and being caused by the indirect pressure of the latter. It is noted that the deltoid is the muscle most commonly involved, though the supra- and the infraspinatus and other muscles are often implicated. The type of the palsy is characteristic — *i. e.*, it corresponds to the pressure type. The prognosis is good, and recovery is the rule. Cases are reported in which the radial, cubital, and anterior tibial nerves were paralyzed, probably from pressure because of faulty position. There is no evidence to show that these peripheral palsies are in any way related to the anesthesia.

Reflex palsies are extremely rare, and are characterized by an exaggeration of the reflexes, moderate but persistent atrophy, and a diminution in electric excitability. They are comparable to the palsies which commonly succeed traumatisms of joints. Their occurrence after anesthesia is probably purely accidental.

It would appear, then, that the only form

of postanesthetic palsy which is avoidable is that of the peripheral type, which is always due to pressure. It should be avoided by guarding against putting the arms in the position of forced elevation and by providing against too long continuous pressure, as by an Esmarch tube, or the resting of a limb over the edge of a table. The curative treatment consists in the use of electricity, unless there are signs of degenerative atrophy. Passive motion and massage should also be employed.

Reports on Therapeutic Progress

METHYLENE BLUE AS A SEDATIVE IN INSANITY.

The history of the use of methylene blue in general therapeutics is similar in many respects to that of other aniline compounds. Early reports, backed by commercial interests, were indicative of its value as a general panacea for many of the ills of the flesh, but of recent years it has found an established though restricted field in a limited number of affections. Its value in malaria admits of little doubt, and in migraine and other nervous affections evidence is slowly accumulating that will give it a recognized position among the hypnotics.

Recent studies by P. Bodoni, of the University of Genoa (*Klinisch-therapeutische Wochenschrift*, No. 21, 1899, p. 666), seem to show its wide applicability as a sedative in excited mental states. He reports fourteen cases in which the remedy was tried; these included such conditions as simple acute mania, mania with furor, periodic mania, chronic mania, and the mania of chronic alcoholism, periodic melancholia, paranoia with delirium, hystero-epilepsy, and puerperal mania. In all of these cases the remedy was administered by hypodermic injection into the gluteal muscles, in amounts varying from one to one and one-half grains. Its sedative action became manifest within from three to six hours and usually persisted a day, or, in some of the cases, even for three to four days. The quieting action was not attended by any narcotic effect, and there were no unpleasant after symptoms observed.

The cause for its action is not definitely understood. By analogy, bearing in mind the use of this substance in technical microscopy by reason of its affinity for nerve tissue (methods of Ehrlich, Nissl, etc.), it would appear that it has a specific action on these tissues during life. This, however, has been denied by some observers, who are inclined to class the drug with the blood poisons, acetanilid, etc., and thus explain its pharmacological action. The author believes that it should take its place with others of the hypnotics, such as chloral, amylenhydrate, trional, and even hyoscyamus.—*Medical News*, Sept. 9, 1899.

THE USE OF QUININE IN MALARIAL HEMOGLOBINURIA.

STEGGALL, of Costa Rica, has reached the following conclusions upon this subject: (1) Quinine causes irritability of the kidneys and may cause hemoglobinuria. (2) Malarial attacks in chronic cases with malarial cachexia may cause hemoglobinuria. (3) In these cases quinine has lost much of its specific effect, and large doses must be exhibited. Should there be a periodicity, we must give the quinine before the time of attack. (4) The action of quinine must be assisted by such drugs as iron and arsenic, and, more important even than quinine, the liver must be acted on well, and the effect kept up. Dr. Steggall says he has never been able to cure an attack of hemoglobinuria without getting the liver active; the bilious vomiting in these cases sufficiently indicates the necessity of this.—*Medical Record*, Aug. 19, 1899.

BROMIDE OF CAMPHOR IN EPILEPSY.

LOUIS HASLÉ (*Thèse de Paris*, 1899) gives an account of careful clinical observations made with this drug in the treatment of epileptics at Bicêtre. Monobromide of camphor has not been hitherto employed in epilepsy systematically or with constant success. It has given variable success in delirium tremens, genito-urinary troubles, particularly blennorrhagia with painful erections (Bourneville), and in retention of urine from hypertrophy of the prostate and spermatorrhea. Haslé, after carefully selecting a number of cases of epilepsy from the abundant material at Bicêtre, obtained the following very constant results: (1) As regards epilepsy proper (*haut mal*), the action of bromide of camphor was doubtful, and was less effectual than the mixed bromides of potassium and sodium and ammonium. (2) In attacks of *petit mal*, and in all cases of epileptic vertigo, however, its effect was incontestable; it at first diminished the frequency of the vertiginous attacks, and finally made them disappear

altogether. The condition to be observed in prescribing was to begin with moderate doses, made gradually progressive and lasting for a sufficient time. Owing to its disagreeable odor it is best taken in capsules of 20 centigrammes, or dragées of 10 centigrammes, beginning with two capsules per diem, and augmenting by two capsules the second week, etc., till eight capsules per diem are taken, then as gradually diminishing the dose till two capsules per diem are reached and maintained for some time.—*British Medical Journal*, Aug. 5, 1899.

RECENT ADVANCES IN PRACTICAL MEDICINE.

In delivering the address in medicine before the British Medical Association Sir DOUGLAS POWELL, in speaking of serum therapeutics, said that as he was in no way competent to discuss the question of serum therapeutics from the bacteriological side, he would only glance at it from the side of results achieved in the form of additions made, and others we may hope to make, to our therapeutics. It is already an immense achievement if we have acquired the knowledge that every infection requires a separately prepared serum for its treatment. It explains many of our failures, and gives promise of adding to our successes. It has for some time been recognized that infective endocarditis has a manifold microbe pathology — streptococcus, staphylococcus, pneumococcus, gonococcus, are some of the organisms concerned. It is useless to employ an antistreptococcic serum for a pneumococcus infection, and even the two organisms, streptococcus and staphylococcus, which seem to work most cordially in couples, require a separate treatment. Thus is in part accounted for the very poor success as yet achieved by the serum treatment of this and of some other maladies more or less allied to it. From the clinical side one would judge there to be very frequently more than one poison in association. This is certainly the case in many diseases — for example, in the third and often in the first stage of enteric fever, in the suppurative stages of tuberculosis, in scarlatina, and perhaps in gonorrheal rheumatism. In pneumonia, again, it is remarkable that in every variety of the disease—the sthenic, the asthenic, the typhopneumonia, the septic pneumonia, and the influenzal catarrhal forms — the characteristic pneumococcus is invariably to be found, and this coccus may be the microorganism conspicuously present in those secondary lesions with which pneumonia is often complicated, and which are attributed to it, such as empyema, infective endocarditis, etc. Yet there are, Dr. Powell thinks, good reasons to doubt whether the pneumococcus organism alone, unassisted by some of its pyogenic *confrères*, is ever able to bring about these secondary lesions which are usually attributed to it. We must push our diagnosis further, then, to include a recognition of the precise organism or organisms which have obtained lodgment in any given case. Unfortunately in the earlier stages, at least of ulcerative endocarditis, bacteriological investigation is by no means always successful in identifying the organism, or indeed in recognizing any organism, for with well marked clinical features the specimen of blood examined may be sterile. We may yet for some time to come, therefore, as in complex cases of enteric fever, with which these cases are often confounded, have to rely upon the general clinical phenomena presented by the case and its history of attack in our attempt to identify the poison and in our endeavor to select the antidote.

Whilst the possibility of neutralizing by appropriate treatment the specific poison in certain diseases will relieve practitioners of some anxiety, it cannot fail on the other hand to add much to the tension of their labors by requiring an earlier diagnosis, and by the great care needed to avoid accidents in the use of delicate organic fluids, prone to contamination and decomposition. It is impossible that the treatment can be much developed in general use until abundant local centers are secured for the provision of materials of guaranteed purity.

It is curious and instructive to note that in the two diseases in which antitoxins are of most approved value, namely, diphtheria and tetanus, the bacillary cultivation is declared (Behring) to be limited to the seat of inoculation, the blood only being charged with their toxins. Whereas the mortality from diphtheria but a few years ago varied from twenty-five to fifty per cent, according to the severity of the epidemic, it has been reduced by the serum treatment from twenty-five to eight per cent, according to the severity of the case and the date of infection.

Unfortunately, we have not yet been supplied with any reliable antidote for the serum treatment of pneumonia. Dr. Powell was

good-naturedly twitted by some of his friends in their criticism of a book published eight years ago, because he did not speak well enough of the then recent observations of Dr. Klemperer on the serum treatment of pneumonia; but in a paper read before this Association in London five years later he could say no more, and to-day, although Pane's antipneumococcic serum will protect a donkey or a rabbit from the evil consequences of a strong dose of pneumococcus infection, it has not as yet come into practical use in the human disease. He has recently tried it in two cases without result. This may be due to three causes: In the first place, it is difficult to use the serum early enough in the disease; secondly, the most severe cases in which alone at present one feels disposed to try the remedy are most generally complicated with other infection, so that the pneumococcus in the sputum does not signify the sole—perhaps not the most important—element of danger in the case; and thirdly, the doses employed by Dr. Pane have been very large, so large that one shrinks from introducing in such bulk an unknown or imperfectly accredited element into any case not already desperate. In the use of these very large doses Dr. Charles, of Rome, has suggested the introduction of the serum per rectum as a method which he has known to prove efficacious with other serums, the absorption being rapid and the serum being unchanged. As yet, however, the serum cannot be obtained in sufficient quantity for use in such large doses. In all probability the want of success, with casual exceptions, in the antitoxin treatment of erysipelas, puerperal fever, and allied affections, including infective endocarditis, may be similarly accounted for by the presence of more than one organic infection, thus requiring, as pointed out by Behring, Pfeiffer, and Kanthack, more than one antidote.—*The Lancet*, Aug. 5, 1899.

THE EFFECT OF BATHS, MASSAGE, AND EXERCISES ON THE BLOOD-PRESSURE.

The *British Medical Journal* of August 5, 1899, details some experiments of EDGECOMBE and BAIN on this subject. The instrument used was Oliver's hemadynamometer. The maximum and mean arterial pressures, and the venous pressure, were recorded; the maximum pressure, as taken by the instrument, being the amount of pressure in millimeters of mercury required to just prevent the passage of blood along the artery; the mean pressure being the reading taken when the indicator gives its maximum excursion; and the venous pressure being the amount of pressure requisite to just prevent the passage of blood along the vein. For arterial pressure the radial artery was employed; for venous pressure the veins of the forearm or back of the hand. The readings were taken in the same posture throughout each series of observations, with due precautions to eliminate the effects of gravity.

Eleven subjects were experimented on, their ages ranging from 20 to 60; they included marked examples of both low and high arterial pressure.

1. The following baths were used: (*a*) Cold, warm, and hot immersion baths of plain water, Turkish bath, Russian bath, sitz bath; (*b*) the needle bath, hot and cold, the alternating douche, the spinal douche; (*c*) the saline-sulphur baths of Harrogate, the artificial Nauheim baths, still and aerated.

2. Massage: (*a*) Dry massage, with and without massage of abdomen; (*b*) wet massage (Aix douche and Vichy douche).

3. Exercise: Resisted movements, dumb-bell exercises, cycling.

The following conclusions were arrived at:

1. Cold immersion baths of plain water raise the arterial pressures, maximum and mean, and lower the venous pressure; after reaction the arterial pressure falls and the venous rises. The results may be attributed mainly to changes in peripheral resistance.

2. Percussion added to cold increases the rise in arterial pressure. In addition to increased peripheral resistance there is probably an increase in the output of the heart.

3. Hot immersion baths of plain water lower the arterial pressures, and both absolutely and relatively lower the venous pressure, to an extent roughly proportionate to the increase of temperature. The percentage fall in venous pressure is greater than the percentage fall in arterial pressure; and the changes are best explained as due in the first place to peripheral arteriolar dilatation, and in the second place to increased capacity of the vascular system resulting from that dilatation.

4. The Turkish baths lower the arterial and venous pressure to a greater extent than the preceding, though the fall in venous pressure is proportionately not so great as that in arterial pressure. The pulse-rate is greatly increased. Associated with peripheral vas-

cular dilatation there is probably a diminished output of the heart, which would explain the greater fall of arterial pressure.

5. Saline baths at warm temperatures lower the arterial pressure to a greater extent than plain water baths at the same temperatures; the venous pressure is raised relatively to the fall in arterial pressure. When the saline material is increased or when effervescence is added (Nauheim bath), a further lowering of arterial pressure takes place, while the venous pressure becomes absolutely raised.

6. Dry massage lowers arterial and raises venous pressure. When the abdomen is massaged a general rise in blood-pressure occurs. This is due to the dispersal of blood accumulated in the splanchnic area into the systemic circulation.

7. The Aix douche lowers arterial and raises venous pressure to a greater extent than dry massage. The Vichy douche raises arterial pressure. This is probably due to the fact that a needle spray is used and the patient is in the recumbent posture, and consequently abdominal massage is more efficiently performed.

8. The effect of exercise on the blood-pressure depends on the severity of the work performed.

THE EARLY RECOGNITION AND MANAGEMENT OF MALIGNANT DISEASE OF THE DIGESTIVE SYSTEM.

EINHORN, writing in the *New York Medical Journal* of July 29, 1899, points out that having made the diagnosis of malignant disease, the question arises, What shall be done for the patient? The following may be given in brief as an answer applicable to the digestive system in general:

1. Whenever the tumor is accessible for operation, and there is the slightest hope of curing the patient, the complete extirpation of the growth should be performed.

2. If the tumor is not accessible for operation, or the entire removal of the malignant disease is practically impossible, palliative operations which serve to alleviate suffering and prolong life should be undertaken in cases requiring them.

3. Cases of malignant disease operated upon, as well as those without operation, require for their treatment and management a skilful physician, who is able to lessen suffering and nearly always also to lengthen life, even under the most trying conditions.

After these general statements, Dr. Einhorn says a few words with regard to the special management of malignant disease in the different portions of the digestive tract.

Cancer of the esophagus and cardia does not for the present permit of any radical operation. As soon as the diagnosis is positive and the dysphagia is such that the patient is not able to partake of sufficient liquid and semiliquid food in order to maintain his weight, gastrostomy should be performed wherever feasible.

Cancer of the stomach and the entire intestinal tract should be operated (*i. e.*, removed), if discovered early enough. Practically the outlook for a cure after a radical operation of some portion of the intestinal canal becomes less encouraging the farther away from the anus the tumor is situated. Malignant disease of the pylorus can often be recognized quite early through the ischochymia which it usually produces. In these instances a laparotomy should be performed as soon as possible and the pylorus resected, with establishment of a new communication between stomach and duodenum if possible; if not, a gastroenterostomy alone should be made. The latter operation is in many cases of decided benefit, facilitating nutrition and rendering the pains less.

Cancer of the lesser curvature of the stomach or of the posterior wall is usually recognized quite late, rendering radical operations practically impossible. If the cardia and pylorus are not involved, there will be no need of any operation, and the usual palliative remedies should be administered. The same may be said also of cancer of other portions of the stomach not involving either cardia or pylorus, in which a radical operation does not appear possible.

Cancer of the rectum can be recognized at an early stage, and resection of the neoplasm is here accompanied by brilliant results. If the tumor is located farther up in the large bowel or the small intestine the results of an operation are not so promising, for here the recognition of the growth is possible only at an advanced period, and by that time often adhesions with other organs and cancerous infection of the glands have already taken place.

Excision of the tumor and resection of the intestine in the neighborhood of the neoplasm, with an end-to-end anastomosis, should be practiced whenever feasible. In case, however, total resection is impossible, an enteroenterostomy or enterocolostomy,

or, if the cancer is situated in the rectum, a colostomy (artificial anus) will be of benefit. These operations are palliative in nature and prolong life, at the same time making it more comfortable. They are intended to allay the symptoms of obstruction and to carry the fecal matter over a new route, not passing through, and thus not irritating, the cancerous area. In some instances of inoperable cancer of the rectum curettage, followed by the application of the thermocautery, may be of benefit for a short time.

MODERN THERAPY OF THE TYMPANIC CAVITY.

Under this title GOLDSTEIN tells us in the *New York Medical Journal* of July 29, 1899, that in a brief paper recently published by him he attempted to compare the two systems of treatment which have in recent years been given every practical test—one, the so-called "dry treatment;" the other, irrigation and syringing with various antiseptic solutions. In summing up the advantages and disadvantages which either of these methods might afford, he has considered the pathological status of the affected area, the character of the discharge, and the size of the perforation, as factors.

From a close comparison of these two methods he believes that frequent use of the syringe and lavage of the auditory canal are distinctly contraindicated in suppurative cases where large perforations of the membrana tympani exist, and where a free entrance of the fluid into the tympanic cavity is so easily effected. In the first place the mucous membrane of the tympanic cavity, bathed in purulent secretions, affords an excellent supply of infectious material, which the force of the current from the syringe or douche may wash into the remote and healthy areas of this cavity and thus mechanically produce an infection of the attic or antrum where none had previously existed. He thinks he can substantiate the assumption that many of the cases requiring mastoid interference or ossiculectomy have been unconsciously produced by the too liberal use of the syringe in the cleansing of the tympanic cavity.

Otological literature contains frequent references and admonitions as to the indiscriminate use of the nasal douche, especially when handled by the patient himself, and points to a subsequent infection of the tympanic cavity as the result of this procedure. If this is so frequently possible by the carrying of the fluid through the entire tract of the Eustachian tube, how much more readily can a similar result ensue when the syringe is brought directly in contact with the tympanic cavity through a large perforation of the membrana tympani.

The second factor contraindicating the use of aqueous fluids in these conditions is the pathological status of the tympanic cavity itself. The mucous membrane of the tympanic cavity during a suppurative otitis is constantly bathed by purulent secretions, resulting in a sodden, boggy surface, and this is accentuated by the addition of aqueous fluids. It is this very stimulation and irritation of the mucous membrane by the fluids with which it is brought into contact that causes granulation and polypus formation. It should be our object to extract fluid from this area and not to add to the already existing serous or purulent infiltration.

Where the discharge is viscid, tenacious, and copious, the application of the syringe with a gentle current of a mild, warm antiseptic fluid may be advocated to clear the auditory canal to the surface of the membrana tympani. Beyond this point, however, it is Dr. Goldstein's opinion that the syringe should not be used in suppurating conditions of the tympanic cavity.

Clearing the auditory canal of these copious discharges may be just as readily accomplished by the use of strong solutions of peroxide of hydrogen, such as hydrozone or the full-strength H_2O_2. This obviates the necessity of the syringe and the considerable pressure of the current of the fluid which is often necessary to dislodge these ropy purulent shreds.

Dr. Goldstein is also opposed to the use of the middle-ear syringe in any affections of the tympanum other than in mild cholesteatoma. Here we deal with a moderately dry cavity, and an alkaline antiseptic solution used with a middle-ear syringe is frequently effective in detaching these epithelial masses.

The method in surgery which has found general favor of late is the "dry dressing." Its advocates and enthusiasts claim for it a more rapid healing, a more natural covering, less irritation of the injured surface, and less danger from infection of the surrounding areas. The "wet treatment" always produces an infiltrated surface, and as this in the ear is generally applied to the mucous membrane, it unintentionally aggravates that condition of "bogginess" which it is our purpose to subdue.

For clearing the auditory canal of pus or mucopurulent discharges, Goldstein has found a small tuft of sterilized cotton wound about the end of a probe or cotton carrier, frequently renewed, and gently applied as a mop, a more effective cleansing agent than a large current of antiseptic fluid.

If but a small perforation exists and the cotton tuft cannot find its way through this perforation into the tympanic cavity, there is always a possibility of retention of the putulent matter and a tendency to prolonged suppuration. In suppurative otitis media of a chronic character, where no pain or discomfort exists, he employs the Eustachian catheter in connection with a nebulizing or vaporizing apparatus, thus accomplishing the threefold result of inflating the middle-ear cavity, of clearing the tympanum of pus and forcing it by a medicated compressed-air current through the perforation, and of medicating the middle-ear cavity more effectually and with less unfavorable possibilities than by the use of an aqueous fluid. His nebulized fluid consists of iodine three grains, carbolic acid four grains, and benzoinol or albolene one ounce. This he uses in conjunction with a hand nebulizer, the supply tube of which is fitted with a special tip, which in turn is snugly adjusted to the proximal end of the Eustachian catheter. In this way his medicated vapor is insured a thorough penetration of the tympanic cavity, and the inflation may be continued *ad libitum*. The simplest index for determining the volume of vapor which reaches the middle-ear cavity in this manner is to watch the vapor as it passes out of the auditory canal. He has frequently succeeded by this steady inflation, continued for five minutes at a time, in forcing the residue of the purulent matter through small perforations of the membrana tympani in a single sitting, and long-standing cases of suppurative otitis media have yielded to this treatment where all other methods have failed.

An antiseptic powder lightly insufflated completes this treatment. Boric acid, which has for so many years been the sheet-anchor of otologists in the treatment of suppurative conditions of the middle ear, is hardly of sufficient antiseptic strength to meet all the demands of modern surgery; iodoform is objectionable, first, because its germicidal action is often questionable, and secondly, because of its disagreeable odor. Dr. Goldstein's preference has been for nosophen, as an ideal powder dressing in the ear, being more potent than boric acid in its antiseptic qualities, odorless, and less irritating than iodoform and with no tendency to clog. Where the discharge is profuse he adds to this treament a gauze packing, selecting narrow strips of plain sterilized gauze in preference to that of iodoform, as previously advocated.

Goldstein also takes this occasion to state that he has now in preparation a paper and report of experimental work on the antiseptic value of certain nebulized fluids on the various microorganisms found in the middle-ear cavity, and he offers the preliminary statement that vaporized oily antiseptics when brought into contact with pure cultures of streptococci and staphylococci afford surprising germicidal results.

It is his further opinion that in the evolution of medications employed in the treatment of the mucous membrane of the upper respiratory tract and of the ear, oil sprays in their various combinations will soon gain the upper hand.

For some time past he has been using medicated liquid petroleums in the treatment of chronic non-suppurative middle-ear catarrh of the hypertrophic form, and has even found this therapy of advantage in mild sclerotic otitis media.

The applications to the tympanic cavity are made as follows: A short hard-rubber Eustachian catheter is introduced in the usual manner and snugly fitted into the nasopharyngeal orifice of the Eustachian tube. Goldstein emphasizes the necessity of this snug fitting to avoid any leakage at the tip of the catheter when the fluid is forced into the tympanic cavity. For this purpose he uses a glass barrel syringe, two inches in length and half an inch in diameter, supplied with a cone-shaped tip by which an air-tight joint is made with the end of the catheter. The syringe is loaded with the above mentioned solution of iodine, carbolic acid, and benzoinol or liquid albolene. When the catheter and syringe are properly adjusted the patient's head is tilted well backward and inclined toward the ear to be medicated. This position has been found the most favorable one for the introduction of the solution. The piston is now pressed home slowly, and in the majority of cases, after six or eight drops have been delivered, the patient will state that he feels an unusual fulness in the ear. The syringe is then detached and the cone-

applied; a few short taps, and then a steady pressure continued for eight or ten seconds is given. This insures the penetration of the tympanic cavity by the fluid. He has convinced himself on numerous occasions of the penetrability of this fluid by applying it not only in chronic catarrhal conditions of the middle ear where the membrana tympani was intact, but also in the treatment of middle-ear cavities, suppurative or non-suppurative, where perforations of the drum membrane existed; where such perforations are present this dark-colored oily fluid may be found on examination exuding into the auditory canal.

ON THE INTERACTION BETWEEN THE OVARIES AND THE MAMMARY GLANDS.

AMAND ROUTH contributes a paper on this subject, to which we have referred editorially, to the *British Medical Journal* of September 30, 1899. He points out that in addition to the internal secretion of the ovary and of the mammary gland, each of these organs has a special function — ovulation and lactation respectively.

By studying these two functions separately and in combination, one may perhaps be in a position to ascertain whether there is any interaction between the ovaries and the mammary glands.

The following questions should be easily answered:

1. Can ovulation occur in the absence of the mammary glands?

2. Can lactation take place in the absence of the ovaries?

In reply to the first question Routh says he does not know of any cases where both breasts have been removed in a woman during active sexual life, but it is probable there are such cases recorded, and it is probable, too, that both menstruation and ovulation would be unaffected.

Paul Bert's experiment on two ewes proves that ovulation and conception may take place, in ewes at all events, when the breasts are removed, and it has a special bearing on the secretion of milk also.

Paul Bert removed the mammary glands from two ewes, and after the wounds were healed put them to a ram, and they became pregnant, proving that the function of ovulation was being duly performed. During pregnancy the urine was free from sugar, but after delivery it contained sugar for several days, and then it gradually disappeared. The urine from two normal ewes after delivery contained no sugar.

Paul Bert believes that the milk-sugar is formed, not in the mammary gland, but in other parts of the body, probably in the liver.

In answering the second question Routh asserts that full-term gestation and lactation proceed normally after complete double ovariotomy. This is abundantly proved, for numerous instances are recorded, but the following will suffice:

In the case recorded by Dr. Lapthorn Smith, full-term delivery occurred 267 days after operation, and lactation was normal. Two cases of Mr. W. A. Meredith were also reported to the Obstetrical Society of London, where gestation lasted the full period—in one case 301 days from the last day of the last period, and the other was slightly over the nine calendar months. They both nursed their children without any evidence of abnormality. The answer to these two questions therefore seems to be, first, that the removal of both mammary glands does not interfere with ovulation, and secondly, that the removal of both ovaries does not interfere with lactation.

A further question may now be asked: Is there any evidence pointing to the mammary glands being affected by states of the pelvis?

In normal physiological conditions it is fairly certain that functional activity of the mammary glands is usually manifested during temporary abeyance of ovarian function, as in pregnancy and lactation; but that mammary-gland activity may continue while the function of ovulation is also proceeding is shown by cases of superfetation, tubal gestation coexisting with normal gestation of a different date, pregnancies of different dates in the two horns of a double uterus, as well as by the fact that ovulation not infrequently recommences during lactation, so that conception may take place without menstruation having recurred; and Gillet, of Toulouse, states that milk secreted during menstruation is more dense and more rich in fat and less rich in sugar.

In pathological states of the pelvis there is no doubt that the mammary glands are greatly affected by pelvic congestion, and evidence tends to show that functional activity, or in other cases chronic hypertrophy of the mammary glands, may occur more as a result of uterine than of ovarian conditions.

Several curious cases of enormous hypertrophy of the mammæ have been recorded

associated with uterine disease. Dr. William Aitken describes one such case—Case II in his paper—where the vaginal portion of the cervix uteri was elongated and catarrhal. A somewhat similar case was described by Routh's father, Dr. C. H. F. Routh, at the International Medical Congress at Brussels in 1892, where bilateral hypertrophy of the mammæ occurred in a young woman whose infravaginal cervix was found to be six inches in length. The cervix was amputated, and the mammary hypertrophy gradually but completely disappeared. M. Bouyer, of Saintes, describes a case of enormous sudden hypertrophy of both mammæ in a girl of fifteen, following arrest of the catamenia. She was not pregnant. Her right breast weighed 20½ pounds, the left 30½ pounds, whilst the patient herself weighed 101 pounds. Another case shown to the Académie des Sciences, Montpellier, in 1878, had also enormous hypertrophy of both mammæ following a cold bath at the onset of her catamenia when 15½ years of age.

The following statement by Dr. W. S. A. Griffith has been recently published and bears on the same point: "There is a direct connection between septic conditions of the uterus and a form of mastitis, a connection which, when first pointed out to me, I was slow to admit, but of the fact I have now no doubt; and in every case of pyrexia with a blush on the breasts, I would urge the importance of examining the interior of the uterus, where frequently will be found some putrid clot or remains of placenta. The removal of this, followed by thorough irrigation of the uterus with an efficient antiseptic, leads to a rapid disappearance of the so-called 'breast symptoms.'"

Assuming, then, that there is an interaction between the uterus and the mammary gland, how is this influence initiated, and how is it conveyed to the mammary gland? Routh has shown how the uterine state influences the mammary glands, and the following cases tend to show that the influence is not conveyed through the nervous system, but through the circulation:

A case of paraplegia in pregnancy reported by Dr. Routh in *Obstetrical Society Transactions*, vol. xxxix, 1899, p. 191, proves that lactation was not induced in that case by the conveyance of nervous impressions from the pelvis to the mammary glands along the spinal cord. The woman, when six months pregnant, fractured her spinal column, and was paraplegic below the level of the sixth dorsal vertebra. She was confined about full term (261 days) without assistance, but with no sensation of pain. Involution was normal, and so also was lactation. She subsequently died, and investigations by Dr. F. W. Mott, Dr. Pembrey, and Dr. William Hunter, showed that the spine had been broken completely across through the intervertebral disk between the fourth and fifth dorsal, the two broken ends overlapping at an angle of 135 degrees. At the seat of the fracture the microscopical sections could not have been recognized as those of a spinal cord, both gray and white matter being completely disorganized and the degeneration complete.

A somewhat similar case is related by Dr. Mercier, where, though paraplegia was present due to cancer involving the dorsal region of the spinal cord, both gestation and lactation were absolutely normal.

These cases tend to show that there is a chemical or biochemical influence present between the pelvic organs and the mammary glands, and that this must be conveyed through the blood, so that it is possible that the internal secretion of the uterus may be the origin of this influence. Moreover, Michael Foster states that milk is secreted when the mamma is deprived of all connection with both the spinal and sympathetic system, though the nipples are not then capable of becoming erect.

It is known that the mammary glands are called into functional activity, milk often being secreted when an ovum dies *in utero*, even before it is expelled.

These facts tend to show that lactation is due to some chemical change in the blood which, in a normal gestation, is produced within a short time after a gravid uterus ceases to contain a living fetus, whether it be at once expelled with its placenta and membranes, or remain for a time *in utero* as in missed abortion or missed labor.

There is more or less sudden cessation of nutritive requirements previously needed by the fetus, and probably a correspondingly sudden absorption into the maternal circulation of waste products involved in the separation of the placenta and in the process of involution. The biochemical change is almost certainly in the uterus and not in the ovaries, and is practically an internal secretion. There seems to be no evidence in favor of any essential interaction between the mammary glands and the ovaries.

SOME POINTS CONNECTED WITH SLEEP, SLEEPLESSNESS, AND HYPNOTICS.

BRADBURY, of Cambridge, England, in this year's Croonian lectures devoted his attention to a consideration of hypnotics, and in his closing lecture he dismisses the general theory of his subject and passes on to the special therapeutics of insomnia, which may be divided into non-medicidal and medicinal measures. The first of these, as it is more or less common to the treatment of all insomnias, will be dealt with first. In all cases, where practicable, the bedroom ought to be in a quiet part of the house, well ventilated, and of moderate temperature. Light should be easily excluded and the apartment scantily furnished. The bed should vary according to the custom of the individual — for young and middle-aged adults a firm mattress is the best, but for the old a softer bedding may be necessary. The covering should be light and warm, but in the use of pillows no general recommendation can be made. Some people sleep better with the head raised, others with the head on a level with the body. In heart disease it will be found necessary to raise the head, but as a rule this arrangement may be left to the choice of the individual. For broad-shouldered people, Whitla recommends the wedge-shaped pillow used by the Germans. Some invalids find much refreshment from the use of two beds—one for the day and the other for the night. In individual cases various means must be resorted to for the purpose of inducing sleep, and often simple ones suffice. Thus some people read themselves to sleep, some people count, other people, like Southey, think of some monotonous discourse. One of Dr. Bradbury's patients used to hang his feet out of bed for some time and then put them in again. Walking about naked or taking a cold or tepid bath is often useful. Massage, especially of the abdomen, the thighs, and the legs, as in Dr. Eccles's method of treating insomnia, is sometimes advantageous. This method is believed to produce temporary anemia of the brain by causing a determination of blood to the manipulated parts, and it may be further aided by a hot compress to the abdomen. In the case of cold feet rubbing them vigorously, or the use of a hot bottle or a foot-bath with mustard in it, is beneficial; or, again, a hot sitz bath may be used. Attention should also be given to the condition of the stomach. As a rule a light supper is the best, and for many, and especially those who awake in the middle of the night, a little hot milk or meat juice containing a small amount of alcohol is helpful. The evacuations should also be attended to and the bladder especially be relieved.

Sleeplessness from overwork, and especially literary work, requires mental rest and change of air and scene. Temporary exposure to the cool air of the bedroom, or the wet pack or a bath, is often of use, and so is a glass of whiskey and water at bedtime, especially in those unaccustomed to the use of alcohol; but if the insomnia continue it is necessary to give a mild hypnotic, such as 20 grains of sulphonal or 30 or 40 grains of bromide of potassium, to break the habit of sleeplessness. Capsules containing 30 minims of turpentine given at bedtime are sometimes beneficial in the insomnia of overwork and worry. The drug acts as a stimulant and derivative and is stated to be most successful in plethoric cases. No beverages containing caffeine should be taken after breakfast.

In nervous and hysterical women, and especially in women at the menopause, the bromides are very useful. Dr. Bradbury has long been in the habit of giving a mixture of bromide—either of potassium, sodium, or ammonium—tincture of sumbul, and tincture of hops, in camphor water, at the climacteric; and it has helped to remove the insomnia as well as the mental depression and flushing heats so common at this period.

The sleeplessness of the insane requires careful management. In the early stages of acute mania the bromides, chloral, hyoscine hydrobromate, and other sedatives are useful, but a hot bath at a temperature of 104° F. and cold water simultaneously poured upon the head are most efficacious in inducing sleep. In melancholia, where arterial tension is usually high, paraldehyde in doses of from 40 minins to 90 minims or even more is a valuable hypnotic, and so is morphine, but a one-grain dose of erythrol tetranitrate by reducing arterial tension will frequently act better than anything else. In mild cases of delirium tremens sleep usually comes on after a time whatever treatment be adopted; in the more severe cases chloral and bromides, alone or in combination, are beneficial. Paraldehyde is recommended by some physicians. Opiates may be given, but in most cases hyoscine is probably a more efficient remedy. Among the medical officers of the American army 20 grains of powdered capsi-

cum in the form of a bolus is the favorite hypnotic for this complaint. Dr. Bradbury says he has had no practical experience of this prescription, and therefore cannot express any opinion of its value as a mode of treatment. Cerebral depressants should be given as little as possible, and the treatment should be confined chiefly to feeding and tonic measures.

In pneumonia sleep usually comes at the crisis, but where this has not occurred he has occasionally seen a hypnotic; such as chloralamide or paraldehyde, turn the scales in favor of the patient. In pleurisy and most other serous inflammations, from five to ten grains of Dover's powder usually conduces to sleep mainly by relieving the pain. A hypodermic injection of morphine may be given with the same object in view. In bronchitis chloral and chloralamide are safe hypnotics, and as a rule opiates are to be avoided, as these depress the respiratory center. The sleeplessness of asthma is relieved by remedies which cut short an attack, such as chloral hydrate, the fumes of asthmatic powders, the hypodermic injection of morphine, or in some cases from a five-grain to a ten-grain dose of citrate of caffeine. Bromides are also useful, and so is paraldehyde, which both relieves the asthma and causes sleep. A change of locality even to another part of the same town often succeeds. In one case the removal of a student from Downing College, Cambridge, to a house across the street brought relief, and in another of Dr. Bradbury's pupils the change from Caius College to a house in another part of the town brought to an end a most troublesome attack of asthma with its attendant sleeplessness.

The insomnia of heart disease is benefited by digitalis, strophanthus, strychnine, and other cardiac tonics, but in some cases it is necessary to resort to morphine either by the mouth, or, still better, hypodermically, as first suggested by Professor Allbutt. Paraldehyde and chloralamide are in Dr. Bradbury's experience most useful. Ice to the head is recommended by Morison where the vital forces are not too low or the temperature subnormal. It often produces sleep rapidly, with a more regular cardiac action. Heat may possibly answer in other cases presenting a subnormal temperature. In chronic Bright's disease insomnia is occasionally very troublesome. Eliminants such as aperients should be tried, and if they do not succeed chloral hydrate may be given. The drug is safer in kidney than in heart disease, the reduction of blood-pressure being usually beneficial rather than otherwise. Morphine and hyoscine hydrobromate subcutaneously injected have been recommended in obstinate cases, but their employment requires great caution. Erythrol tetranitrate, by reducing arterial tension, often acts as a charm even when sedatives have failed; and in one of Dr. Bradbury's patients thorough rubbing of the skin by means of a flesh-brush induced sleep and very materially relieved the restlessness of the disease. When pain is the causal factor of insomnia morphine is usually the best remedy, and this should be pushed until relief is obtained. In cases of neuralgia, locomotor ataxia, and so forth, some of the synthetic analgesics — phenazone or phenacetine — are of value. These drugs, as has been previously stated, act also as hypnotics in cases where there is no pain. Calcium chloride is a valuable remedy in the insomnia due to pruritus.

HEADACHES OF GASTROINTESTINAL DISORDERS.

The treatment of headaches of gastrointestinal origin is palliative and curative, according to FRANK BILLINGS, who writes on this theme in the *Journal of the American Medical Association* of September 23, 1899. The palliative measures consist in removing the source of the poison by emptying the stomach, by emesis or lavage; moving the bowels by cathartics or by colonic flushing; promoting excretion of the poison from the blood by diluent drinks to aid skin activity and diuresis; and relieving the pain by small doses of the bromides combined with caffeine, or by the cautious use of phenacetine or some of the other petroleum derivatives, or, in very severe cases, by a small dose of morphine hypodermically. In incurable organic disease of the stomach palliation will be the limit of treatment.

Curative treatment will consist of the application of the laws of hygiene, modified to suit the individual case; a selected diet for each individual; the free use of pure water as a diluent drink; recreation in the form of physical exercise or physical rest, commensurate with the mental activity or physical tire of the individual; the correction of irregular habits of sleep, of time of taking food, and of exercise; the withdrawal of tobacco, tea, coffee, and alcoholic drinks, which is usually necessary, and especially in

the patients who suffer from the neuroses. Lavage the stomach when necessary and overcome the constipation by hygienic measures, if possible, without drugs. In the conditions of malnutrition and anemia, give restorative tonics and an abundant simple diet. In short, a sensible hygienic life will not only prevent the headache, but will usually remove the gastrointestinal disease or cause.

THE LOCAL TREATMENT OF PUERPERAL INFECTION, WITH ANALYSIS OF FORTY-EIGHT CASES.

In the *Medical Chronicle* for September, 1899, LEA lays down certain principles of local treatment which are briefly as follows:

A rise of temperature of over 100.4° during the puerperium should lead to careful investigation as to its cause.

A rise of temperature may be due to constipation or gastric irritation, to mental emotion, tension of milk in the breasts, or to some intercurrent disorder. If these can be excluded it is probable that the pyrexia is the result of some form of infection.

If the temperature rises to 101.4° or more, and this is not obviously accounted for by any of the above mentioned causes, a careful examination of the genital tract is made. If the perineum and vagina are uninjured, or even if there is a laceration which appears to be healthy, a uterine douche is given. For this purpose a double-channel glass or metal catheter, after the model suggested by Budin, is used. The cervix should be fixed by a vulsella, and it is advisable to introduce a duck-bill speculum, and previously cleanse the vagina and cervix thoroughly by a douche. The solution used for the intra-uterine douche should be a mild antiseptic, such as carbolic acid (1:40), tinctura iodi (a teaspoonful to the pint), or perchloride of mercury (1:4000), followed by a douche of saline solution or plain warm water.

If after twenty-four hours there is not a marked improvement in the pyrexia and general condition, or if the temperature continues to rise, the uterine cavity is explored by the sterilized finger. This step is taken earlier if there is evidence of retained products *in utero*. In every case the finger will detect shreds of decidua, and the placental site is felt to be projecting into the body of the uterus and has a roughened surface.

If any retained products (clots, decidual débris, membranes, or placenta) are found, these should be removed by the finger, and it is often necessary to use a blunt flushing curette to insure complete removal. After this procedure a douche is again given, and a gauze drain introduced into the uterus.

If, however, the symptoms at the time of exploration are severe, as shown by high fever, quick pulse, and abdominal tenderness, the uterine cavity is thoroughly curetted, with the object of removing the infected decidua. After this, the cavity is thoroughly swabbed with cotton-wool soaked in perchloride solution (1:2000), and a strong antiseptic applied to the interior of the uterus. In some cases tincture of iodine has been used, or carbolic acid (fifty-per-cent). Latterly a solution of creosote and alcohol, fifty-per-cent, as recommended by Budin, has been adopted.

The uterus is now lightly packed with iodoform or aseptic gauze, which is removed at the end of twenty-four hours.

Ergot should be given as recommended by Bumm. It stimulates the uterine muscle to contract, thus mechanically compressing the blood-vessels and lymphatics, and diminishing the absorption of poisonous products. It is best given hypodermically (ergotin gr. ij every four hours).

The use of an anesthetic is not necessary in every case. Much depends on the type of patient. If there is any laceration of the soft parts, exploration of the uterus may cause great pain. In many of these cases chloroform was given. Pinard strongly advises against the use of anesthesia, and never adopts it in his practice. He recommends that no speculum be introduced; the cervix is seized by a vulsella, guided to it by the finger, and the uterus drawn down towards the vulva. If care be taken that the vulsella forceps do not press upon the soft parts anteriorly, the uterus can be explored and curetted without causing any pain.

The value of vaginal douches in the treatment of puerperal infection has been much overestimated. They have little therapeutic effect, and may be actually harmful. The vagina is well protected by stratified epithelium, and is never the source of infection or absorption unless a laceration is present. The douche prevents accumulation of the lochia in the vagina, and may have a slight value if the cervix is infected. It is possible also that it may reflexly stimulate the uterine muscle and thus promote the escape of discharges. The fluid, however, does not reach the interior of the uterus, and hence can have little effect in the great majority of cases, in which intra-uterine absorption is the most

important factor. Great care is also necessary to avoid the introduction of infective material from the perineum or vulva, especially if lacerations or raw surfaces are present, since the tube may readily carry organisms into the vagina or lower segment of the uterus.

The use of the uterine douche is by no means free from danger, and some have proposed that it should be abandoned altogether. As a mode of treatment it may cause abrasion of the uterine mucosa unless the direction of the canal be known beforehand. The cervix should be fixed by a vulsella, and the tube passed very gently and slowly. In some cases alarming symptoms follow its use, such as collapse and shock, sudden rise of temperature with a rigor, or severe abdominal pain. To avoid any such complication, the fluid used should be a very mild antiseptic; it should be injected slowly without any pressure, and the fundus uteri should be controlled by the hand pressing above the pubes. In some cases the Fallopian tubes are very patent after delivery, and fluid has sometimes passed into the peritoneal cavity during the administration of a douche. In rare instances also fluid has entered one of the venous sinuses, or air embolism has been caused. These accidents are all very rare, and can be avoided if great care is used.

Continuous uterine irrigation has been strongly recommended by Pinard and others. Dr. Lea, however, has no experience of this mode of treatment.

The dangers of the curette are: (1) Perforation of the uterus. This has happened many times, and the walls of the puerperal uterus are sometimes very soft and thin, so much so that a curette may very easily be passed through into the peritoneal cavity, without giving any unusual sense of resistance. To avoid this accident a large curette should be used. It must be introduced with very great care, and the length of the uterine cavity measured before commencing to use it. A hand should also be placed on the abdominal wall to support the fundus uteri, and afford counter-pressure whilst the curette is manipulated in the cavity. (2) Hemorrhage. Bleeding is sometimes very free during curetting. This specially occurs if chloroform is given. It is, however, always checked by gauze packing of the uterus. (3) Air embolism. Pinard had one death from this cause, in a woman whom he curetted on the second day after delivery. This was no doubt due to detachment of a thrombus from one of the larger sinuses, allowing air to enter the circulation. He therefore advises that curetting should never be done before the third day. After this day there is little risk of this accident. (4) The curette has been held by some to be dangerous, since by its use raw surfaces are made in the cavity of the uterus, which may therefore facilitate the entrance of organisms and the spread of infection. If, however, a strong antiseptic be applied after the operation, this danger is to a great extent avoided.

The after-history of cases curetted for puerperal infection is a very important subject. Is the recovery complete, or do many of the cases develop chronic metritis or pelvic peritonitis with disease of the appendages?

HYPODERMIC FEEDING WITH YOLK OF EGG IN ANEMIC CHILDREN.

MUGGIA, of Turin (*Revue Mensuelle des Maladies de l'Enfance*, May, 1899), has for some time treated children suffering from anemia and athrepsia by the hypodermic injection of a preparation of yolk of egg. Freshly-laid hen's eggs are taken and carefully washed before opening. The yolks are received into a sterile glass vessel, and are weighed and then mixed with a third of their weight of physiological salt solution. The mixture is then thoroughly stirred up with a glass rod, and filtered through aseptic absorbent gauze. The liquid thus obtained is of a bright yellow color and of homogeneous consistency, and can be used for hypodermic injection. It is well to begin with an injection of about one cubic centimeter made into the buttocks or the lumbar region, and provided asepsis is strictly observed throughout there is no local or general inflammatory reaction. The region of injection should be slightly massaged. The quantity of hypodermic injection is gradually increased till a limit of ten cubic centimeters per injection is reached. The duration of treatment varies according to each case, but in any case not less than one hundred cubic centimeters (twenty injections of at least five cubic centimeters per dose) should be administered. According to Muggia's observations it appears that both the body weight of the children and the percentage of hemoglobin in the blood increase in the case of athrepsic infants. The number of red corpuscles also rises, and this occurs much more readily than if lecithin were administered in the same way.—*British Medical Journal*, Sept. 30, 1899.

DISINFECTION OF THE HANDS.

SARWAY (*Centralblatt für Gynäkologie*, No. 41, 1899) conducted a series of investigations to determine how thoroughly the skin of the surgeon's hands can be disinfected without the employment of antiseptics other than alcohol. He notes first that cultures can always be obtained from hands which have not been carefully prepared, and the number of germs which can be grown is increased by moistening such hands with sterile water. Moreover, the number is increased by five minutes' vigorous washing with sterile water, sterile soap, and a sterile brush. If, however, after this vigorous washing the hands are again washed for five minutes in ninety-six-per-cent alcohol with sterile brush, and sterile cloths, the number of germs is slightly lessened. A ten-minute washing of the hands in hot water, 42° C., also diminishes the number of germs.

THE USE OF ANTISTREPTOCOCCIC SERUM.

The *Medical Press and Circular* of September 27, 1899, has in it a paper by BOND upon this much-debated and interesting plan of treatment. He asserts that the success of the treatment in his cases was very marked, especially in two cases in which the disease was very extensive, and the constitutional symptoms severe. Within a few hours of the administration of the first dose the temperature was considerably reduced, and the patients expressed themselves as feeling much better, and three or four doses were sufficient to overcome the disease. The injections did not cause any cutaneous symptoms, such as are sometimes seen after the administration of the antidiphtheritic serum, with the exception of some slight tenderness at the point of inoculation, which tenderness passed off without treatment in the course of a few hours. The site chosen for the injection was the subcutaneous tissue of the anterior abdominal wall, in the iliac region.

The serum has also been used in other suppurative and pyemic processes, with varying success; in some cases no benefit whatever has been obtained from its administration. But in these cases it is necessary to remember that the antistreptococcic serum is only claimed to be of value in cases of streptococcus infection, and that it will obviously be of no service in diseases due to the presence of other organisms. A case in point occurred at his hospital a few weeks ago. A woman was admitted suffering from ulcerative endocarditis following parturition. On admission her blood was examined bacteriologically and found to be sterile. Antistreptococcic serum was administered every day for a fortnight, but with no signs of improvement. Subsequently her blood was examined a second time, and the presence of staphylococci was demonstrated. No streptococci were found. In this case the antistreptococcic serum could not be expected to produce any benefit, seeing that the disease was due to other organisms. It is therefore advisable, before pronouncing this method of treatment to be a failure, to make sure that the disease for which it is used is due to the presence of streptococci; but it is not necessary to wait for the result of the bacteriological examination before commencing the treatment, as by so doing the disease is allowed to progress, and the chance of saving the patient's life may be lost, whereas, even if the injection do no good, it does not appear to produce any ill effects.

OBSERVATIONS ON TONSILLECTOMY.

The *Journal of the American Medical Association* of September 23, 1899, contains an article by COULTER, in which he concludes his review of the subject by the question: What, then, are the general results of tonsillectomy, as compared with those obtained by the usual operation of tonsillotomy, as is ordinarily done by the general practitioner or most specialists as well?

1. It gives a cosmetically perfect throat. It gives a throat practically precluding the possibility of a return of the tonsillitis. It gives a throat in which there can be no absorption of the toxins or bacilli into the lymph channels at that point; at the same time it certainly offers to the patient a better chance for recovery should he subsequently be subject to an attack of any disease affecting the throat, such as the exanthemata, diphtheria, or quinsy.

2. It liberates and allows a perfect action of the pillars and soft palate, the same result holding whether the pillars were adherent from inflammatory action or bound together by a cicatricial stump the result of a former tonsillotomy.

3. It removes a mechanical obstruction to the sound waves. This, in the case of those professional people who are compelled to use the voice in singing or speaking, is a matter of no little importance.

4. The operation, thoroughly and properly done, is more likely to be effectual in reliev-

ing a reflex disturbance when such neurosis is due to a pathologic tonsil than is the more simple operation of tonsillotomy.

5. If thoroughly and properly done, and the case receives the proper subsequent care and treatment, it will leave a perfectly smooth surface in place of the tonsil, which result cannot as certainly be attained by a tonsillotomy, and with ignipuncture it is a practical impossibility. With singers this becomes an important matter.

6. Pillars which were for many reasons previously hypertrophied will ordinarily, after this operation, promptly retract to a normal contour and size.

7. It is in some cases a practical operation where another would be almost or quite impossible—for instance, in those tonsils which on the surface are so soft and degenerated that a firm hold on them cannot be obtained by any instrument; to obtain satisfactory results these must be dissected out entirely.

INFLUENCE OF MATERNAL INEBRIETY ON THE OFFSPRING.

Dr. W. C. SULLIVAN, of H. M. Convict Prison, Parkhurst, publishes in the *Journal of Mental Science* (July, 1899) a number of observations of the rôle of maternal alcoholism as an agent in race degeneracy. It has been observed by most authorities that those classes of individuals who exhibit marked incapacity or inability to adapt themselves to normal social conditions—*e.g.*, many feeble-minded and imbecile subjects and a considerable portion of habitual criminals and prostitutes—are largely recruited from the offspring of the alcoholic. Thus, of a series of 1000 idiots examined by him Bourneville noted alcoholic parentage in sixty-two per cent, Marro observed an alcoholic parentage in forty-six per cent of criminals, while forty-five per cent of inmates in the Swiss prisons for juvenile offenders showed a similar past; and Madame Tarnowsky found that eighty-two per cent of Russian prostitutes were the offspring of alcoholic parents. To observations of this kind it has been objected that as parental drunkenness is an easily traceable antecedent it would tend to figure disproportionately among the causes assigned in such inquiries, and that in many cases it may get the credit of bringing about in the stock a degenerative taint which really existed prior to it, and of which it was, in fact, merely a symptom.

To avoid this possible source of fallacy, it seemed desirable to adopt at the outset an opposite standpoint and to take as an end of the investigation, not alcoholism in the ancestry of the degenerate, but degeneracy in the descendants of the alcoholic. For this purpose a series of cases of chronic drunkard women who have borne children were selected from the female population of Liverpool prison, among whom habitual inebriety had been very prevalent. All cases exhibiting a phthisical or syphilitic history were excluded from the inquiry, as well as cases which were the subject of marked neurotic taint as manifested by a specially early and violent cerebral reaction to alcohol. This process of selection avoids the more obvious source of fallacy in such inquiries, though certain qualifications are still to be considered. These drunkards who find their way to prison belong, for the most part, to the lowest grade, where even moderate alcoholic indulgence implies diminution of other food supplies; further, their excesses are, as a rule, persistent and intense. Again, it is an unquestionable fact that in the criminal as in the insane alcoholic the nervous manifestations of intoxication occur with notable frequency, while non-nervous disorders are relatively rare and secondary. Thus, in the cases comprised in this inquiry the special nervous localization of the poison was very marked.

Thirty-one of the women had suffered from one or more attacks of alcoholic delirium, while twenty-four others, without actual delirium, had occasional visual hallucinations. Suicidal impulses, disorders of cutaneous sensibility, and cramp in the extremities were noted in a considerable number of cases. Similar characteristics were found to be present in the case of alcoholic relatives of the patient. Of 120 female inebriates whose histories were trustworthy there were born 600 children, of whom 265 (44.2 per cent) lived over two years, while 335 children (55.8 per cent) died when under two years of age, or were still-born. With a view to establishing comparisons with a healthy non-alcoholic standard, it was found that 21 of the women were able to give details regarding female relatives (sisters or daughters) of sober habits who had contracted marriages with sober males and had borne children. Thus, of sober mothers, 28 in number, there were born 133 children, of whom 33 (23.9 per cent) died when under two years of age. Thus the death-rate amongst the children of

the inebriate mothers was nearly two and a half times as great as that amongst the infants of sober women of the same stock.

Another feature established by the observations was the progressive death-rate in the alcoholic families when three or more children were born. This will be best seen from the following table:

	Cases.	Dead and Still-born. Per cent.
First-born	80	33.7
Second-born	80	50.0
Third-born	80	52.6
Fourth- and fifth-born	111	65 7
Sixth- to tenth-born	93	72.0

These figures illustrate very clearly the progressively augmenting results of the influence of the mother's alcoholism on the offspring. The type of alcoholic family suggested by these results—a type characterized by decrease of vitality in the successive children—is fully realized in many of the observations, of which the following is an instance: S., aged thirty-four years; previous imprisonments 41. Drunkard since first confinement; beer and spirits. Suffers from gastric catarrh and cramps; had one attack of delirium tremens. Attempted suicide twice; hysterical convulsions. Husband drunkard; never delirious. His and her parents sober. Six children; first, second, and third living, healthy; fourth, aged six years, of low intelligence, habits bad; fifth, aged four years, epileptic idiot; sixth, still-born; seventh, a recent abortion. In other cases we find the first-born healthy, one or two of the next dying from infantile convulsions, and the last child or two still-born.

Of the children comprised in the series 219 lived beyond infancy, and of these nine, or 4.1 per cent, became epileptic—a proportion extremely high as compared with the frequency of epilepsy in the general mass of population, which, according to Bruce Thompson, is less than 1 per 1000.—London *Lancet*, Sept. 30, 1899.

THE PREVENTION OF SICKNESS AFTER ANESTHETICS.

BLUMFELD, in the London *Lancet* of September 23, 1899, says that some of the chief points to be attended to in the avoidance of after-sickness are: (1) Use as little of the anesthetic as possible consistent with perfect anesthesia; (2) wash out the stomach at the close of the operation when much mucus has been swallowed; (3) in long operations substitute chloroform for ether after three-quarters of an hour; (4) move the patient about as little as possible during and after operation; (5) place him on his right side in bed with the head only slightly raised; (6) give nothing but hot, thin liquids in small quantity for at least eight hours after; and (7) do not alter the temperature of the room for some hours. With proper attention to these points one-third of the patients operated on will be free from after-sickness, and for short operations the proportion will be much higher still. In fact, after all administrations up to twenty minutes, or not much longer, sickness will be found to be the exception.

THE TREATMENT OF TUBERCULOSIS BY CINNAMIC ACID.

Professor LANDERER, of Stuttgart, has published a volume of three hundred pages in which he gives his methods and results in the treatment of tuberculosis by cinnamic acid. His experiments have extended over fifteen years and have been employed in 240 cases in the Sanatorium at Leysin. He believes that cinnamic acid produces an intense phagocytosis, causes a sclerotic condition of the tissues in the neighborhood of the morbid process, thereby circumscribing it, and that it also exercises a germicidal influence upon the bacillus. Cinnamic acid occurs in small, colorless, and odorless crystals, insoluble in cold water, somewhat soluble in hot water, and very soluble in alcohol and ether. The cinnamate of sodium is a white crystal powder soluble in hot water in the proportion of 1:20. Landerer has employed the cinnamate of sodium in the form of a solution or emulsion. The strength of the solution varies from one to five per cent, and the reaction is made neutral or strongly alkaline. The solution before it is employed is filtered, and sterilized by boiling for five minutes. The formula employed is as follows:

Finely powdered cinnamic acid, 7 grains;
Oil of sweet almonds, 150 minims;
Yolk of an egg, 1;
Saline solution, 7 per 1000.
A sufficient quantity to make 3½ ounces.

This preparation is introduced into the body by intravenous or intramuscular injections. A vein is bandaged in such a way as to make it stand out well, owing to constriction, careful antiseptic precautions are used, and fifteen to thirty minims of the liquid

is injected into the vein, after which the needle is withdrawn and a small compress is applied. As a rule the injections at first must be given in very small quantities, one-sixtieth to one-thirtieth of a grain of cinnamic acid being usually enough to begin with. Larger doses are finally employed, but nothing in excess of a third of a grain is ever given. When intramuscular injections are used, slightly larger amounts may be given at the beginning dose. The injections are repeated every two to four days, according to the state of the patient. [We do not believe that it is safe to inject oil of sweet almonds into a vein, since oils injected into veins are very apt to produce emboli.—Ed.]

Landerer claims to have obtained the following results: In 110 cases of pulmonary tuberculosis of different degrees he got 57 cures, 26 improvements, 5 unsuccessful cases, and 22 deaths. In 72 patients suffering from tubercular arthritis he got 59 cures, 8 improvements, 2 unsuccessful cases, and 3 deaths. In 18 cases of glandular tuberculosis he had 17 cures and 1 improvement. In 20 cases suffering from peritoneal tuberculosis he got 16 cures, 2 deaths, and 2 patients in whom no change was appreciable. In 5 cases of urinary tuberculosis he got 3 cures and 2 deaths. In 3 cases of tuberculosis of the testicle 1 cure, and in the other two cases no results were appreciable. He therefore considers that his method of treatment is really specific to a great extent.—*Journal des Praticiens*, October, 1899.

THE PROGRESS OF MEDICINE IN THE NINETEENTH CENTURY.

Dr. Frederick J. Roberts, in the course of an address before the Medical Society of London, which is published in *The Lancet* of October 14, 1899, tells us that a distinct advance in practical therapeutics which must not be forgotten as a development of this century is in the modes of administration of therapeutic agents, the preparations and appliances intended for local purposes, and the instruments or apparatus invented for making applications to, or otherwise treating, special parts. At the present day a visit to the exhibition usually arranged for our edification at the annual meeting of the British Medical Association and at various congresses is a revelation as to what has been and is being accomplished in this direction, in which, of course, our profession is greatly aided by pharmacists and instrument-makers. Reference may be made to the many palatable, convenient, compact, and elegant preparations given to us by pharmaceutical chemists for internal administration, in contrast with the boluses, powders, electuaries, and horribly nauseous draughts and mixtures of the old pharmacy; and to the introduction of the hypodermic syringe, the value of which to the practitioner can hardly be overestimated. Undoubtedly there are serious drawbacks associated with these advances which we must never ignore, and these are the facility with which the laity can now get strong drugs in convenient forms for their own use without any medical supervision, and the danger of falling into the habit of using powerful subcutaneous injections, which has done, and is still doing, such serious mischief, not only amongst patients but also to members of our own profession, a fact which is but too familiar.

During the earlier part of this century, and indeed until within a comparatively recent period, treatment consisted almost entirely of the use of drugs in different ways. By degrees the great principles of hygienic treatment took hold of the profession and the public, and they are now well to the fore and highly popular, at any rate in theory. Surely this is a great step in advance in practical therapeutics, and nowadays, apart from the more obvious general hygienic measures, the means for carrying out some of the most important of these principles, such as change of air, suitable climate, sea voyages, the use of baths, and the like, are so increased and improved, and so much within the reach of large numbers of the community, even to some extent among the poorer classes, that there is no excuse for neglecting them. Diet, too, has come to occupy a far more conspicuous place in treatment than formerly, and is regulated on more scientific principles, certainly to the general advantage, though there is, perhaps, a tendency in the profession on the whole to make more of questions relating to food and drink than seems absolutely necessary, which renders it very difficult to deal with not a few patients who, being quite "up-to-date," expect to receive the most explicit directions as to diet under every conceivable circumstance, and suitable for every complaint, real or supposed, from which they may happen to suffer. And what shall be said about nursing, which to-day is so universally and rightly regarded as one of the most important and essential parts of modern treatment? Some of us must have

a vivid recollection of the hospital nurse of former days, who was as incompetent as she was unattractive and insanitary, and of the time when private nursing as it now exists was practically unknown. The progress that has been made in this department is simply amazing, and those who are only familiar with the present state of things can have no possible conception of the magnitude of the changes which have taken place during the last thirty or forty years, and of the comparative advantages in the way of capable and reliable nursing which modern treatment affords.

A conspicuous, and within due limits really serviceable, development of modern therapeutics is the introduction or more systematic working-out of what may be termed "special methods" or "combinations of methods," which are still being added to, and intended either for the purpose of producing some particular effect which might be beneficial in various conditions, or for the treatment of some individual disease or class of diseases. It would be quite out of place to attempt even to enumerate these methods here; but they are not all really novel, some being the revival of methods formerly practiced, or the application, more or less elaborate, of well known physical principles. Others, however, are the natural outcome of the more or less modern discovery of forces, or elements, or facts previously unknown, which under judicious and intelligent guidance have been found to be highly valuable in treatment when properly employed. Others, again, are essentially recent and original, especially those which we owe to the truly astonishing and far-reaching results of investigation and research in relation to bacteriology and kindred subjects.

Taking a comprehensive view of these modern methods, they certainly are so far to be commended that they present a practical protest against the needless and excessive use of drugs which, when rationally and honestly employed, are often of unquestionable advantage in treatment. Some of them give evidence of the possession, on the part of those who are responsible for their introduction to the profession or their practical working, of considerable ingenuity and inventive ability; others of a profound knowledge of human nature. It is a pity that they afford excellent opportunities for the most outrageous quacks outside the profession to enrich themselves at the expense of the idiotic simpletons who are still found in such large numbers even in this highly educated and enlightened age. Of this statement glaring and really ludicrous examples could be given. But what can we expect when so many men and women of intellect and culture, aggressively scientific, will to-day throw over everything that is orthodox in our profession and pin their faith upon any system, however pretentious and absurd it may be, which gives itself a high-sounding name, and will even prostrate themselves before the Christian Scientist!

THE TREATMENT OF WHOOPING-COUGH.

The *Journal des Praticiens* of September 30, 1899, gives the following summary of various methods which may be employed in the treatment of this affection. One method is that of Dutremblay. It consists in treating the disease by inhalations of oxygen gas saturated with medicated vapor. In a dilatation of the tube through which the oxygen gas passes is placed a piece of cotton, and this cotton is wet with equal parts of bromoform and cherry-laurel water. In other cases it is wet with a solution of bromated camphor.

Gilbert has suggested that whooping-cough be treated by antidiphtheritic serum, and claims that when this serum is injected as it would be for the cure of diphtheria, it does good in whooping-cough, perhaps by producing leucocytosis. He claims that Cerioli, in an epidemic of whooping-cough, treated fifteen cases in this way with very satisfactory results in all except one. The dose injected was from five to ten cubic centimeters, but the strength of the antitoxin is not given.

A third way of treating the disease is that by Legrand, who has found *Grindelia robusta* a most efficient remedy in whooping-cough as well as in asthma. He believes that the powdered bark and its fluid extract are apt to be inactive, but that the tincture is useful, and that the alcoholic fluid extract is also valuable. He has usually administered the fluid extract in sugared water or milk, although there is always a certain amount of the resinous material precipitated in the vessel from which the child takes the dose. This may, to a certain extent, be avoided by adding to the milk a little glycerin and alcohol. Children should take eight minims of the extract every few hours according to the effect produced.

INTESTINAL STRANGULATION BY MECKEL'S DIVERTICULUM.

BÉRARD and DELORE (*Revue de Chirurgie*, No. 6, 1899) have quoted thirty-two cases in which operation was performed for the relief of intestinal obstruction due to strangulation by Meckel's diverticulum. Twenty-three of these patients died and nine recovered. The usual cause of death was septic peritonitis, which in turn was due to delay in operation.

THE TREATMENT OF PERSISTENT ARTHRALGIA BY RESECTION.

OLLIER (*Revue de Chirurgie*, No. 9, 1899) reports a number of cases of persistent and crippling arthralgia successfully treated by joint resection. He holds that the question as to the advisability of surgical intervention under such circumstances is one which is extremely difficult to determine. Moreover, the diagnosis is often obscured by hysteria.

Of the four cases which Ollier reports, all were young women; in two the shoulder was resected, in two the knee. In all the lesions found on opening the joint were not in the slightest degree commensurate to the degree and severity of the pain.

The first patient, after traumatism, suffered the most agonizing pain in her shoulder. After four months' immobilization and revulsion without any benefit, the joint was resected. The bone was perfectly sound, but the cartilage was congested. The pain was relieved immediately, and the wound healed, leaving a perfectly functional joint. Seven years later this patient died of tuberculosis. In two other cases the affection began with slight trauma. In the fourth case it began apparently as a rheumatic joint.

ACUTE INTESTINAL OBSTRUCTION FROM IMPACTION OF GALL-STONE IN THE UPPER PART OF THE JEJUNUM CURED BY ENTEROTOMY.

STIRLING (*Intercolonial Medical Journal of Australasia*, No. 9, 1899) operated on a man sixty-eight years old for the relief of a sudden attack of pain and vomiting. He had had one previous attack of biliary colic. There was marked shock. The vomiting was fecal in character, and constipation was absolute. As soon as the abdominal cavity was opened, a gall-stone was recognized in the lower part of the jejunum. This was removed, and the bowel was closed with Lembert sutures. The abdominal wound became infected and was opened. Afterward the patient healed without accident. Two other cases of acute intestinal obstruction from impacted gall-stone occurred in the Melbourne Hospital within the author's recollection. Both cases died—one from gangrene of the intestine, and the other from general peritonitis.

SECTION OF THE SYMPATHETIC IN THE TREATMENT OF EPILEPSY.

LABORDE (*Therapeutische Monatshefte*, Heft 10, 1899) states that when epilepsy has been artificially produced in guinea-pigs, either by section of the sciatic or half section of the spinal cord, cutting the sympathetic has no curative effect upon this epilepsy. Déjerine, in commenting upon this observation, holds that it accords strictly with clinical observation, since a case on which he had operated for the cure of epilepsy by cutting the sympathetic exhibited afterward both increased violence and increased frequency of the attacks.

TREATMENT OF CHRONIC URETHRITIS BY INSTILLATIONS OF PICRIC ACID.

DESNOS and GUILLON (*Journal de Médecine de Paris*, No. 41, 1899) assert that picric acid exerts an almost specific action in the cure of chronic urethritis. Although this drug when employed for the cure of extensive burns has more than once produced symptoms of poisoning, its toxic properties are comparatively so mild that it is impossible to inject into the urethra a quantity sufficient to cause constitutional symptoms. The solutions stain the fingers, but the stain is rapidly removed by soap and water, whilst the color can be removed from fabrics by the employment of diluted solutions of ammonia or potassium. The instillations are accomplished by means of a syringe holding about eighty drops of the solution. This is adjusted to a hard catheter with a fine lumen. The latter is introduced to the compressor urethræ muscle, and the solution is driven in gently until it flows out at the meatus.

The posterior urethra is treated by introducing the end of the catheter through the compressor muscle and injecting as before, the fluid then flowing into the bladder. This latter viscus must, of course, have been emptied before the instillation is made.

The strength of the solution varies from 1

to 200 and 1 to 100. The quantity employed varies from twenty to eighty drops. Very little pain is experienced as a result of these injections, and this quickly passes off, nor is the reaction characterized by an uncontrollable desire to urinate, and the reappearance of a free discharge. The authors have treated only twenty-nine cases of chronic urethritis. In twelve the infection was tubercular, in seventeen it was due to other microorganisms. These cases were such as had proved intractable to the careful and scientific employment of the ordinary medicaments, such as protargol, silver nitrate, copper sulphate, etc.; and indeed the claim is made for picric acid that it is especially serviceable under such circumstances. The cocci were few, and the discharge so slight as to be perceptible only after debauch. The duration of the treatment has varied from two weeks to five months. In general, from sixteen to seventeen treatments were sufficient.

Of the seventeen cases of simple chronic urethritis, thirteen were definitely cured, two were markedly helped, and two experienced no benefit; one of these latter was afterward cured by urethrotomy, and the other by instillations of protargol. Of the twelve tubercular cases, two were cured, seven were benefited, two were made worse, and one showed no effect.

ONE THOUSAND AND ONE LAPAROTOMIES.

SNEGUIREFF (*Revue de Chirurgie*, No. 9, 1899) takes much joy in the thought that of his 1001 cases he has not caused death in a single instance by either sponges or instruments being left in the abdominal cavity. He states that airy persiflage and brisk conversation is unseemly in the operating-room, because thus may be confused those persons to whom is entrusted the count of the sponges and instruments. Ninety-eight of his patients died, a mortality a little under ten per cent. It is to be noted that exploratory laparotomy, which was performed twenty-four times, gives a mortality of sixteen per cent, while supravaginal hysterectomy is credited with a mortality of over seventeen per cent. Thirty-nine cases died of septic infection, thirteen of internal hemorrhage, eighteen of shock and of paralysis of the heart, and only two of pleurisy or pneumonia.

Secondary laparotomies were performed for intestinal occlusion in eleven cases, three of which died; for anuria in two cases, one of which died; in cases of fear that sponges or instruments had been left in the belly in two other cases, one of which died. It is interesting to note that in 1889 the author operated on 101 cases, and in 1899 on a similar number, thus not showing that increasing rapacity for geometrical increase often noted in the modern laparotomist.

In 1896 the author was using catgut prepared in the ordinary manner and with perfect satisfaction, when suddenly three septic cases developed, in which infection was shown by the autopsy to have started in the ligatures. Until 1896 sponges were used, since that time gauze. The author remarks that since using a proper sterilization there was a rapid diminution in mortality. In the last year, of ninety-eight cases of laparotomy but a single one died; death in this case was due to pneumonia and cardiac palsy. It is noteworthy that lysol is used in cleaning the wounds, that tendon is employed for ligatures and buried sutures, and that the instruments are boiled in water. Saline solution is used liberally, not only for its cleansing purposes, but also as a hemostatic and as a means of finding the source of a bleeding. Iodoform gauze is used liberally, and firm faith is placed in drainage; indeed, drainage has been used in nearly half of the cases, and the author naively remarks that the hernias were due not to the drainage but to other circumstances.

CONGENITAL IDIOPATHIC DILATATION OF THE COLON.

GRIFFITH (*American Journal of Medical Sciences*, September, 1899) reports a case of fatal idiopathic dilatation of the colon occurring in a boy about three years old who had been troubled from birth by persistent constipation, and who had a progressive distention of the abdomen from his fifth month. Right inguinal colotomy was performed, but the child perished of exhaustion. There follows a careful study of the literature bearing on this subject.

Griffith states that the degree of dilatation of the colon had been often enormous. It has sometimes appeared at autopsy to fill the whole abdominal cavity, crowding everything else out of sight. A very characteristic pathological feature has been the thickening of the walls of the colon. This has been reported in nearly every case. Only in Formad's is it stated to have been absent. In a

few others it is not referred to. Generisch is disposed to regard the thickening as an early change, and as one of the causes of the loss of peristaltic power. It seems, however, just as likely that it is a later change occurring in an effort at compensation. Ulceration of the mucous membrane is another alteration quite often seen. It is doubtless a later change and not a necessary one. It was nearly always found in cases in which severe diarrhea had terminated life.

The diagnosis is easily deduced from the symptoms. It rests upon the very early presence of troublesome constipation; the development with this, soon after, or rarely before, of great tympanitic abdominal distention; the discovery often of the distended colon outlined through the abdominal walls; the absence of evidence that the constipation is due to impaction; the absence of any discoverable organic obstructive cause, as shown by the exploration of the rectum and colon; the absence of any previous debilitated state of health which might occasion colonic atony; and, finally, the confirmation by an autopsy that no structural obstruction of the intestine was present. This last, although, of course, a "post-mortem diagnosis," is often indispensable. A sharp diagnostic line between idiopathic and obstructive congenital cases cannot always be drawn.

Treatment can only be (1) hygienic and medicinal, and (2) operative. In the first class improvement of the general health is indicated, since this may help to increase the peristaltic power of the colon. Massage has been recommended by some, and condemned by others on the ground that it may produce perforation of ulcerated spots. Carefully performed in cases without diarrhea or tenderness, it seems indicated. Electricity may be used for the same purpose. Means must be employed to empty the bowels either by purgatives or enemata. Objections exist to the use of either, since eventually they tend to weaken still further the muscular power. In the case of Hughes the child seemed to be made distinctly worse by enemata. Yet it is often a case of "needs must," and that remedy has to be selected which best unloads the bowels and gives relief. The use of the rectal tube to remove gas has sometimes been a great comfort to the patient. In three instances — Martin's, Hobbs', and de Richmond's, and one of Hirschsprung's — puncture of the intestine with a fine trocar has been performed, in order to allow gas to escape.

In any severe case tending to grow worse seasonably early operation of some sort is to be advised. In spite of the gravity of the procedure, not to employ it seems still more grave. Exploratory laparotomy was performed on the patients of Fütterer and Martin, but nothing more radical was attempted. An artificial anus was made by Halsted in Osler's case, and the child recovered. The operation done by Treves on a child with dilatation consecutive to congenital stenosis might well be employed in idiopathic cases—viz., the entire removal of the functionally useless dilated colon and the joining of the small intestine with the anus. As this is a serious operation the attempt to relieve the dilatation by the formation of an artificial anus may well be made first.

SURGICAL TREATMENT OF DUODENAL ULCER.

PAGENSTECHER (*Deutsche Zeitschrift für Chirurgie*, 52 Band, 5–6 Heft) states that duodenal ulcer should be treated on the lines applicable to the treatment of gastric ulcer. The indications for operation are also similar in the two cases; thus, persistent dyspepsia, pain, vomiting, repeated and exhaustive bleeding, and the symptoms of acute perforation all indicate operation. Moreover, dilatation of the stomach, secondary to duodenal ulcer, and encapsulated abscess, also require surgical intervention. Perforation usually takes place in the peritoneal cavity. The symptoms are either those of generalized sepsis, suppurating abscess, peritonitis, such as follows perforation of the stomach, or of a suppuration or perforation of the gall-bladder.

The author quoted twenty-eight cases of operation with a mortality of nearly eighty-six per cent. In only twelve cases was the perforation found; eight of these died. Bleeding is one of the most constant symptoms of duodenal ulcer; it appears both in the vomit and in the stools. Cachexia, associated with a wasting pain, indigestion, and vomiting, is present, and is as pronounced as in ulcer of the stomach. The differential diagnosis of the two affections is, as a rule, quite impossible. Perry, of seventy cases treated medically and showing on section either ulcers or the scars of ulcers, states that twenty died of these ulcers, and in only eight was there cure, or 10.4 per cent. Of twenty-eight perforating ulcers treated surgically, twenty-four died. Of five cases operated on

during the florid period of the ulcer, one died after three months, and autopsy showed that the ulcer was healed; the remaining four lived and exhibited no further symptoms of ulceration. Of four cases operated on because of cicatricial stenosis, one died of operation, and the remaining two lived and remained well.

THE TREATMENT OF GUNSHOT WOUNDS OF THE MID-DORSAL REGION.

AUSCALER (*Revue de Chirurgie*, Sept. 1, 1899) calls attention to the difference in vulnerating effect between the pistols commonly sold in the shops and the modern weapons which throw bullets of small caliber at high velocities. In the former case the moderate penetration of the bullet allows it to rest either in the soft parts or against the bony prominences of the spinal column without other risk than that of secondary abscess and resultant infection, whilst the modern bullet striking the transverse process of the vertebræ would not only shatter it into many pieces and destroy the cord, but would necessarily carry many fragments literally by the hundred into the thoracic cavity in front. Moreover, there is immediate paraplegia. If this latter symptom is absent the prognosis is much more favorable. The absence of paralysis does not, however, prove that the vertebræ have not been injured. Thus, Chipault records the case of a man struck by a revolver ball in the body of the third cervical vertebra. The ball glanced downward into the mediastinum, causing an abscess from which the man perished two months afterward. Immediately after the injury this patient walked over seven miles.

It is possible for a patient to drop instantly paralyzed by a gunshot wound without injury to the spine, or to remain standing in spite of fracture of the vertebræ. Cure is exceptional when paraplegia develops, since it is customarily a sign of section of the cord. It is, of course, always possible that the ball has penetrated to and not through the cord and produced paralysis by its direct pressure; under such circumstances an exploratory operation is indicated, by means of which the bullet may be removed, together with the broken splinters of bone pressing upon the cord.

Where there is no paralysis it may be taken for granted that in the majority of cases there is either no fracture of the vertebræ or, at the most, a lateral or spinous process is involved. The ball may have penetrated into the mediastinum without producing any serious damage to the cord. The question as to the proper treatment in such cases cannot certainly be regarded as settled. A study of the reported cases shows that abscess may develop ten, fifteen, or even twenty years after the injury. The author holds that when a ball has passed into the mediastinum past the vertebræ, suppuration is practically unavoidable, even though there be no complication with fracture. It follows that in wounds of the dorsal region surgical intervention is indicated quite as strongly when there is paraplegia as when this complication has not developed. The author warns against delay, even that incident to the employment of the *x* ray apparatus, particularly when the cord is wounded. He holds that the stereoscopic fluoroscope is, however, of extreme importance in locating bullets in the mediastinum. Moreover, thus can be seen the amount of deformity caused by the bullet, from which can be deduced the presence or absence of severe bony lesions. Surgical intervention in the cases of bullets from modern weapons will practically be limited to the application of occluding and antiseptic dressing.

NEW METHODS OF EXPLORATION APPLIED TO DIAGNOSIS OF RENAL CALCULI.

ALBARRAN (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) exhibited an *x*-ray photograph of a renal calculus, the first he had been able to obtain in the living, and narrated the history of a man twenty-eight years old, who entered the hospital because of symptoms of vesical irritability. This patient gave a history of repeated urethral infection, and had turbid urine for many years. Six years before he suffered from very severe renal pains, particularly marked on the left side, and lasting for several days at a time, but not assuming the characteristics of renal colic. Two years after this he suffered from occasional attacks of hematuria, following violent exercise, and especially horseback riding. This was allayed by rest. During two years of active campaigning he lost all his symptoms, but having been attacked by typhoid fever he developed a frequent and painful micturition, which became progressively worse until he was forced to seek surgical help.

A careful examination eliminated urethral or prostatic causes. The bladder was extremely sensitive, and its capacity was mark-

edly diminished, but no stone could be found by the searcher. There was no pain in the renal region, either spontaneous or excited by pressure.

Pyuria was constantly present. The diagnosis was evidently one of cystitis and pyelonephritis. The history proved conclusively that the infection started in the kidney. The pyelonephritis was evidenced by a purulent polyuria, the total quantity sometimes reaching seven pints, and by the chemical composition of the elimination; moreover by the passing blood which was found in the urine, as it escaped from the ureters. This was determined by introducing a catheter into the bladder, and washing this viscus thoroughly. The first urine which escaped from the catheter after this washing was turbid. But three hypotheses as to diagnosis were possible—the affection was either a simple, a tubercular, or a calculous pyelonephritis. The absence of tubercle bacilli, and of other signs or symptoms of tuberculosis, practically excluded this affection, whilst the aggravation of the bleeding, incident to exercise, strongly suggested calculus. This diagnosis was a probable, not an absolute, one, and moreover the affected side still remained to be determined.

The modern instruments employed for this service are the phonendoscope, which Albarran states has failed in his service, even when employed by Bianchi himself, in one out of two cases, and the cystoscope, which is much more to be trusted, since it enables the surgeon to inspect the ureteral orifices, and to observe the regularity with which the urine jets from them. In the normal state this jet is observed about every thirty seconds. Its rhythm may be greatly altered by disease, and the presence of blood or pus coming from one or the other kidney may thus be determined. The especial use of the cystoscope is, however, to facilitate catheterism of the ureters. This, in very exceptional cases, enables the renal stone to be felt with the searcher. Usually, even though a stone be present, the searcher fails to reveal its presence. Such catheterism should never be practiced when there is cystitis. If it is practiced, the bladder must be fairly capacious, which it was not in the case reported.

In this instance the Roentgen ray furnished the deciding proof. Uric acid calculi are most permeable to the Roentgen ray, the oxalates the most opaque.

Albarran cites most of the published cases of x-ray photographs of renal calculi, including those reported by Leonard, and has appended to his paper a picture of his own case, unusually clear in detail. He states that the radiograph will demonstrate perfectly oxalate calculi, which are the rarest of the common varieties. It will also show the presence of the phosphates and carbonates, but if Leonard's case be excepted, it has always failed to demonstrate the uric acid calculi and the urates. This is unfortunate, since the last mentioned calculi are under all circumstances the most difficult to diagnose, and are the ones which commonly lead to error in treatment. The absence of a shadow of a calculus in a carefully taken x-ray picture by no means excludes the possibility of a calculus existing in the kidney.

OSTEOARTHRITIS OF THE SPINE: SPONDYLITIS DEFORMANS.

GOLDTHWAIT (*Boston Medical and Surgical Journal*, Aug. 10, 1899) uses the term osteoarthritis to designate the disease of the articulations which is characterized pathologically by a marked proliferation of the edges of the articular cartilage, associated with an atrophy or degeneration of the cartilage at the points of pressure, the two conditions producing an amount of impairment of function of the joint varying from the slightest inconvenience to complete ankylosis.

The disease has been described by various writers in journal articles, but as yet there has been but slight mention of the subject in the works on orthopedic surgery, and most of the literature is devoted to the report of individual cases, with but little consideration of the disease itself.

Goldthwait has seen ten cases, which, with the thirty-five cases previously reported, make a sufficient number for analysis; but before this can be done these cases must be distinctly differentiated from the other type of rheumatoid disease, which is chronic in character and also leads to joint ankylosis, but in which there is atrophy of all the joint structures with no tendeney to nodular growth or osseous deposit, as is seen in the type of disease under consideration.

Both of these diseases are usually considered together in the text-books under the head of arthritis deformans, which accounts for the variation in the clinical picture as it is presented by the various writers.

As the cases are seen side by side there cannot be the slightest question but what there are two distinct diseases, or two very

widely divergent types of the same disease, and it is because of this that much of the confusion has arisen.

In a paper published in the *British Medical Journal*, Bannatyne and Vollman have carefully described the two types, and in a paper entitled the "Treatment of Joints Disabled by the So-called Rheumatoid Diseases," published by Goldthwait in the *Boston Medical and Surgical Journal* of January 29, 1897, the two types were described and illustrated. In that paper the descriptive term "arthritis deformans" was used to designate the whole class of these so-called rheumatoid diseases. Rheumatoid arthritis was used to designate the cases in which joint inflammation and atrophy, resulting in ankylosis and marked distortion, were the chief features, while osteoarthritis was the term used for the cases in which the nodular deposits about the articulations were the most prominent features.

The importance of this differentiation is mentioned because several of the cases which have been published as spondylitis deformans are undoubtedly cases of rheumatoid arthritis, and are not osteoarthritis.

It is evident in the first place, in the analysis of the cases, that the disease is essentially a disease of adult life, but not necessarily a disease of old age, as is often stated. Some of the worst cases have developed in the period of late adolescence, while in very few has the process started in old age. The disease as it is seen in old age is not so definitely localized in the spine, but as a rule the other joints are also more or less involved.

Another feature which is also noticeable is that there is no one cause or definitely recognized etiology to explain the onset. Gonorrhea has been mentioned as a probable cause in a certain number of instances, but in a much larger number this is not suggested as a possibility. In the majority of cases the cause seems to be some exposure, or the rapid change in temperature of the affected part.

Still another thing which is evident is that the disease is not peculiar to this generation, and that it also is not peculiar to the human race.

Pathologically the disease consists of a nodular enlargement of the edges of the articular cartilages, with the subsequent ossification of these nodes and an extension of the process into the ligaments which have their origin or insertion near-by. With this hypertrophy at the edges of the cartilage the centers or areas of pressure usually undergo atrophy. In the atrophy the interstitial tissue is the last to be absorbed, which explains the granular appearance as it is seen at times, but as the process continues this interstitial substance is absorbed, and either the two surfaces of bone fuse or remain in apposition. In the other joints in which there is free motion the bare surfaces of bone frequently become polished and increase in density.

The process in the spine usually begins upon one side anteriorly and extends up or down along the anterior lateral ligament. It may remain as a comparatively local process involving only a small portion of the ligament, or it may cross over to the other side and extend up and down until the whole spine is invaded. When this occurs the chief deposit or new formation of bone is along the lateral ligament, the change in the median line consisting simply of a fusion of the vertebræ.

At times, even though the hypertrophic change is quite active, that which develops from adjoining vertebræ does not fuse, and a more or less free joint remains.

As the disease goes on in the ligaments and cartilages the intervertebral substances atrophy, and if the process is slow the entire intervertebral disk may be absorbed before ankylosis takes place.

When these changes are taking place in the anterior portion of the spine, similar changes take place in the ligaments and articulations at the back, so that the transverse and rarely the spinous processes are affected. It is the disease in these regions that causes most of the symptoms of paralysis or disturbed sensation, by narrowing the foramina through which the spinal nerves pass.

Clinically, as the disease is seen, the subjective symptoms are usually slight in comparison to the actual pathological change, and frequently there has been so little trouble with the back, and the change has taken place so gradually, that the patient is not conscious of any special limitation, the condition being discovered by accident. More often, however, there is considerable pain, which is referred to the back, and which is aggravated by change of position. When quiet the pain is so mnch relieved that the patient frequently does not seek treatment until the disease is far advanced, or even if treatment is asked it is often excused without examination as a "touch of rheumatism," and the therapeutic suggestions made accordingly.

If the disease is seen early, before much

actual change has taken place, there is usually a definite region in the spine to which the pain is referred, and in this region the motions are restricted, at first, of course, by muscular spasm, but later by osseous change. At this time, when the process is so definitely localized, the portion of the spine affected may appear more prominent than normal, suggesting the beginning deformity of Pott's disease, and a positive diagnosis may not be possible. The onset is suggestive, and also the reference of the pain to the back at the exact seat of the disease rather than the referred or abdominal pain of Pott's disease, but it may require some weeks before the true nature of the process can be determined.

As the ankylosis of the spine takes place the ribs almost invariably are affected, and the process may prove so extensive that all the articulations become ankylosed, and the thorax is perfectly rigid. In this case thoracic respiration is of course entirely lost, and the breathing is done wholly by the diaphragm.

Beside the pain in the back and the limitation of motion, neuralgic pains in the arms or legs, together with disturbances of sensation, numbness, or hyperesthesia, are probably the most common symptoms. These are, of course, due to pressure upon the nerve roots, and consequently are not seen until the disease is well advanced, or when the onset has been unusually rapid. Rarely are the two sides affected equally, or if both sides are affected the symptoms have developed at different times. This, together with the fact that the paralysis is peripheral in type, is of importance in differentiating it from Pott's paraplegia.

Occasionally, when the disease is very active, the same osseous deposit takes place in the posterior ligament (ligamentum longitudinale posticum), and may result in enough narrowing of the spinal canal to produce symptoms of pressure paralysis, exactly similar to that seen in connection with Pott's disease. This is not very common, but nevertheless does occur and must be borne in mind in making the diagnosis.

After the active stage of the disease has passed, with the lessened vascularity, and natural shrinking of the non-osseous structures, the direct pressure upon the spinal cord is usually relieved, and the same may be true of the pressure upon the nerve roots.

The deformity, which is so striking at times, has a wide range of variation. In the most extreme form the rounded back with the protruded head and the flat chest is the type usually pictured or described. It is evident, however, that the nature or extent of the deformity must vary with the seat or extent of the disease, and also with the rapidity of its development.

A moderate amount of lateral deformity is not uncommon, and is almost always present when the disease is in the cervical region.

The treatment of this disease is of more importance than is commonly supposed, and is partly medicinal and partly mechanical. As an early diagnosis is, of course, of the first importance, it is at this time, before the deformity has taken place, that the most can be accomplished. The disease is probably a trophic process, and consequently all medicines or methods of treatment which debilitate should be most carefully avoided. This naturally includes the various so-called rheumatic remedies, all of which are depressants, and also the various baths or courses of treatment which tend to lower the vitality. The general treatment should be wholly nourishing and stimulating. Extra diet, stimulating bathing, massage of the unaffected parts, electricity in a mild current, all are of value; and also the dry heat, provided it is not used so frequently as to be debilitating, relieves the pain and does much good. For medicines, iron, arsenic, and strychnine are the drugs which are of the greatest value. Cod-liver oil and alcohol in medicinal doses are also useful. For mechanical treatment some form of spinal support should be used at once, partly to relieve the pain by restricting the motion, and partly to prevent the marked deformity from developing.

Manipulation of the spine is naturally of little value, and probably would result in more harm than good. Attempts have been made to forcibly break up the ankylosis, but they have been followed, as would be expected, by results which were not satisfactory.

MOULLIN ON THE APPLICATION OF THE ROENTGEN RAYS TO MEDICINE AND SURGERY.

MOULLIN, in addressing the Roentgen Society (*Lancet*, Aug. 19, 1899), stated that it was his first duty to clear the Roentgen rays of a stigma which has been thrown upon them, and which has in some measure tended to limit their sphere of usefulness. So far as regards the injuries, often of a very serious character, which have followed prolonged exposure to the discharge from a focus tube the events and discussions of the past year

go a long way towards proving that the Roentgen rays stand blameless. Whatever the cause, the effect is not to be laid to their charge. The ether waves, which we recognize as light and heat, are acknowledged by all to have great influence over the changes which take place in living tissues. The ultra-violet rays, it is known, are especially potent, and the discharge from a focus tube may be so powerful as to cause the death of the structures which are exposed to it. But not only is there no proof that the ether waves which possess this power are the same as those which can be made visible to us as Roentgen rays, but there is every reason to believe that they are of quite a different order. Screens which cut off one have no influence upon the other, and consequences which follow too close exposure may be prevented, or at least very greatly diminished, by the interposition of substances perfectly transparent to the Roentgen rays. These consequences, however, although they may not be due to the action of the Roentgen rays, have an interest peculiarly their own, and Moullin thinks that they have not yet received the attention which they deserve. He thinks that in a few years' time, or even in a few months—for everything in connection with the subject advances with startling rapidity—it is quite possible that the existence of the ether waves which produce these results will be regarded as a matter of scarcely less importance than the existence of the Roentgen rays themselves. These waves have scarcely been studied as yet. Their action has been dreaded and avoided rather than courted. Every attempt has been made to eliminate and get rid of them. But of their power to influence the proecsses of nutrition which take place in the tissues for good or for bad, according to their strength and mode of application, there can be no question, and although in the strict definition of the title of the Roentgen Society they may not come within its scope, Moullin could not help expressing the hope that the Society may be made sufficiently comprehensive to embrace them and their action as well as the Roentgen rays themselves.

Instances of the injurious power possessed by these ether waves when exposure has been too close or too prolonged will occur to every one. They are matters of common notoriety. Hairs die and fall out. The cells that line the hair follicles perish, and though as a rule the hair is regenerated, after a time the effect upon the surviving cells is shown by the weak and stunted appearance of the new growth, and by the fact that it is often white in color. The epidermis becomes dry and scaly in the same way. The nails are affected, and briefly, if the exposure is sufficiently close the nutrition of the nearest and most superficial structures is so impaired that they die and are thrown off. In the worst cases the effect extends more deeply still. Not merely the epidermis, but the corium and even the subcutaneous tissues perish, so that when the dead structures do separate at last the destruction may be so great as to necessitate amputation. There is no inflammation at any time. The effect is entirely different from that which is produced by light or heat or by the action of the ultra-violet rays. In the majority of instances no change of any kind is perceptible for upwards of three weeks. There is no alteration in the blood-supply or in the innervation of the part, no coldness or loss of sensibility. Doubtless the cells which form the walls of the smaller blood-vessels and the terminals of the nerves are affected like the other, but the death which follows is not due to cessation of the circulation or to defective innervation. Quietly and slowly, at the end of about three weeks, cell after cell perishes, layer after layer is thrown off, until at last a stratum is reached in which there is still sufficient vitality to enable the tissues, if everything else is favorable, to hold their own and to begin the process of repair.

Every case heretofore reported has been characterized by these peculiar features—features which distinguish these injuries from all others. There is first a long period of quiescence in which no change of any kind is apparent, a period of weeks. Then there is a period of decay and death, extending more or less deeply according to the duration and the closeness of the exposure, entirely uninfluenced by treatment. There is no evidence that anything in the way of active treatment has stayed the process in the least, though it is not improbable that it has sometimes made it worse. And this in its turn is succeeded by a period of repair, as slow and precarious as it is after an extensive frost-bite, the progress which has taken weeks to make often disappearing again entirely in the course of a few hours.

Such were the results obtained in the earlier cases—results not anticipated, and above all to be avoided. But because an agent at its first introduction, when its powers are entirely unknown, is found to

be of a most destructive character, it does not follow that when properly controlled and regulated it may not possess valuable properties of its own. And this appears to be true of these ether waves. Events and discussions of the past year have shown that the power which, uncontrolled, is able to destroy all that stands in its way, may be tempered in such a manner as to prove a valuable source of help. That bacteria living in the tissues can ever be destroyed by its agency, as they can be when growing in artificial cultures conducted under special conditions, is highly improbable. The power of resistance possessed by these minute organisms is as great as, or even greater than, that of the tissues themselves, and anything which tends to lower their vitality would lower the vitality of the tissues to at least an equal degree. All hope, therefore, of destroying such organisms as the tubercle bacillus in the tissues must be laid on one side. But it has been shown that under the influence of these ether waves tissues which have been invaded by certain organisms and which were failing in the struggle may be so strengthened as to be able to cope with their invaders far better than they could before, and even in certain instances gain the upper hand without any other assistance. But there can be no doubt that cases of lupus and eczema have been cured by exposure to these waves, not the least successful having been those published in the Archives of the Society by Mr. Thurstan Holland, and that not only have they been cured, but that the scars left have been of a singularly inconspicuous character, showing that the destruction of the living cells had been reduced to the smallest limit consistent with repair. How far this action is capable of extension it is not possible to say at present. The whole thing is in its infancy. But no one can deny that in these ether waves we possess a power which can quietly and imperceptibly modify the processes which are constantly taking place in living cells in such a way that we can either stimulate them to increased energy or depress their vitality until they quietly and slowly perish. The day may come when the existence of this power may prove of scarcely less importance than the discovery of the Roentgen rays themselves.

Immense improvements have been made in the course of the past year in the manufacture of tubes suited to the much more heavy discharges that are being used now, and in other technical details. Two especially stand out above the rest as of the highest practical importance in medicine and surgery, namely, the application of stereoscopy, by which localization has been rendered so much more easy and the relative position of deeply buried objects has been made visible; and, though it is far from probable that we have reached finality in this, the introduction of the Wehnelt break. The time of exposure even for such cases as renal calculi has been shortened from hours to minutes and even fractions of a minute. The risk of causing injury has altogether disappeared. Many operators can point to hundreds of cases which they have taken, not one of which has ever suffered the slightest harm. The illumination now is much more brilliant and more steady. Clearness of definition has been increased almost beyond expectation, and means have been devised by which photographs can be obtained of many of the soft structures in the body which were previously regarded as too transparent to throw any shadow. It is unhappily still true that a large proportion of the rays is wasted and lost, especially in taking photographs, and that a great deal of the detail is obscured in printing, so that the chief value is in the negative. In other words, we are not yet able to utilize to the full, or even nearly to the full, the light which we can produce. But there can be little doubt that in a short time these difficulties, too, will be overcome, and that then the results which we shall obtain will be as superior to our present ones as these are to those of two years ago.

The screen has now reached such a degree of perfection that with suitable apparatus the minutest movement of the heart and the lungs, and the least change in the action of the diaphragm, can be watched and studied at leisure in the living subject. Photographs of the most deeply buried bones can now be obtained without difficulty. Measurements of such structures as the pelvis can be taken directly by a simple process of calculation without subjecting the patient to the least inconvenience.

Many disorders which even after the discovery and the first application of the Roentgen rays were regarded as almost impossible of certain demonstration, such as aneurisms of the thoracic aorta, interlobar empyemata, mediastinal abscesses, and patches of central pneumonia, can now be shown upon the screen with the greatest distinctness and localized with absolute accuracy. Photographs can be taken of enlarged mediastinal

glands and of other intrathoracic growths. The illumination now is so steady and uniform that the earliest stages of tuberculous lesions in the lungs can be seen and recognized, partly by the curiously stippled shadows which they cast, partly by the visibly impaired movement which accompanies them, a fact which has not escaped the notice of some of those who are connected with life assurance. Cavities in the lungs, whether containing air or pus, can now be detected at once, and the position and depth from the surface can be accurately mapped out, so that the question of the advisability of drainage and operation is once more coming to the front. The presence of adhesions, the alteration in the level of pleural effusions in different positions of the body, the distinction between sub- and supra-diaphragmatic collections, and the existence of cysts or of tumors projecting from the upper surface of the liver and raising the diaphragm, can now be shown with the greatest clearness. And the same may be said of the changes in the position of the heart and in the size and shape of its chambers, whether brought about by disease or by strain thrown upon their walls by difficulties in connection with distant vessels. They can be seen distinctly with the screen and can be watched from day to day, especially easily in those cases in which owing to the presence of emphysema and the absence of cardiac dulness the ordinary tests fail to give any information. There is, in short, scarcely any change in connection with the lungs and the heart and the great vessels which cannot now be seen and photographed, scarcely a disease of the chest or of the organs which it contains concerning which the most valuable information cannot be obtained.

The benefit which surgery has derived from the improvements which have been effected in the use of the Roentgen rays during the past year is no less striking. Military surgery will have to be rewritten. Thanks to the ease with which suitably planned apparatus can be carried on campaign, all the wearisome and intensely painful probings after bullets and foreign bodies to which the wounded look forward with such dread have been swept away. The actual position of the bullet is defined at once, no matter how deeply buried it may be, and if removal is considered advisable it is cut down upon and extracted in accordance with well-defined anatomical principles, and the track that it has made is left to heal up of itself. Shot and other substances, such as portions of percussion caps, have not only been localized in the eye, but their exact shape and size have been ascertained with so high a degree of accuracy that they could be removed by the most direct route through the smallest possible incision. Bullets, the position of which inside the skull could not even be conjectured, have been successfully localized and extracted from the brain. Foreign bodies, such as plates of false teeth which have been swallowed accidentally, or worse still, have dropped into the air-passages; others, such as Murphy's button, introduced in the course of operation, splinters of bone, pins and needles of various kinds, wire sutures, fragments of glass which have been buried perhaps for years, and numberless other substances, have not only been made visible, but have been marked out as accurately as if they had been lying in some perfectly transparent medium, so that they could be excised or not according to the degree of inconvenience which they caused and the relative danger of the operation.

As might be expected, the largest proportion and the most striking cases have been furnished by the injuries and diseases of bones and joints. Those only who have experienced the difficulty of determining whether a fracture or a dislocation, or both together, may not be present in the neighborhood of such a joint as the elbow, when the soft tissues around are so swollen that no bony prominence of any kind can be felt, can realize the immense help given by a well-lit fluorescent screen. It is no question now of long exposure or of keeping the patient, perhaps a child frightened and suffering pain, quiet for a considerable part of an hour, or even under an anesthetic—half a minute is enough. The nature of the injury is apparent at once, and what is even more valuable, it is no less easy to ascertain whether the fracture is properly set or the dislocation completely reduced.

Diseases of bones and joints have benefited no less than injuries. Thanks to the improved methods of the past year the hip-joint can now be radiographed with certainty. All the strange appearances which were so misleading, and which were due in large measure to the distortion produced upon the photographic plates by faulty position, can be eliminated, and the various forms of congenital dislocation can be differentiated from each other and from such complaints as coxa vara, which are attended

by deformity of a somewhat similar character. The fate which overtakes bony grafts implanted into defects has been watched as plainly as if the grafts were on the surface of a limb instead of deeply buried in its substance. Diseases such as sarcomata, tuberculous deposits, central abscesses, necrosis, and the like, which when they occur in deeply seated bones are often exceedingly difficult to recognize and distinguish from each other, have been made perfectly plain. Cavities hitherto almost inaccessible without operation, such as the frontal and sphenoidal sinuses, have been brought within reach of the probe. Valuable help has been given in the diagnosis of antral and other maxillary tumors, and a serious blow has been inflicted upon the reputation of the bone-setter, who, now that the position of even the smallest bone can be shown to the patient in a photograph, has been compelled to alter his phraseology if not his practice.

Renal calculi can be looked forward to with a fair degree of certainty, and what is even more valuable, as saving patients from unnecessary operation, the evidence can be trusted equally well when it is negative. In all ordinary cases it may be said that if no calculus is seen there is no calculus there to see. Unfortunately biliary calculi elude us still.

THE DANGERS OF REDUCING DISLOCATIONS OF THE SHOULDER BY THE FOOT-IN-THE-AXILLA METHOD.

THOMAS (quoted in the *Medical Review*, vol. ii, No. 12) calls attention to the dangers of the "foot-in-the-axilla" method of the reduction of shoulder dislocations. Quoting some extremely instructive cases in corroboration of his statements, he notes, as sequelæ of this method, almost total musculospiral paralysis (the exception being feeble extension of elbow and wrist); almost total median and ulnar paralysis; general atrophy of the muscles of the forearm and hand; trophic changes of the skin.

It has often been stated that the head of the displaced humerus presses on the brachial plexus, and produces loss of power in the muscles of the arm. In very severe injuries this, of course, may be so, but of all the dislocations reduced by the method of manipulation to be described, in not a single case were there paralytic symptoms. That pressure of the humeral head on the brachial plexus may occur during its absence from the glenoid cavity is admitted, but that this pressure hardly ever produces severe damage of the nerves in ordinary cases can be readily demonstrated by testing the power of the hand and elbow *before* reduction is attempted.

When the foot is placed in the axilla in dislocation of the humerus, it presses itself into an angle formed by the shaft of the humerus and the axillary border of the scapula, and produces pressure on the nerves of the brachial plexus, the nerves most liable to suffer being those nearest the bone, viz., circumflex and musculospiral nerves, these being contused against the humerus, some branches to the triceps generally escaping pressure; this accounts for the persistence of some triceps power. If the operator uses great force, then the median and ulnar nerves are damaged against the humerus. The amount of pressure used is more than is generally supposed. From a consideration of many cases, and an examination of the anatomical parts concerned, the writer has no hesitation in affirming that the foot-in-the-axilla method is responsible for these paralytic arms.

Why is the foot-in-the-axilla method so commonly resorted to? Apparently from frequent failure of the well known Kocher method of manipulation, in all but the extremely simple cases, where the head of the humerus has not traveled far inwards; for the utility of this method is undoubtedly limited, and it is only particularly applicable to the subcoracoid variety.

The following method of manipulation has answered very well in all the cases that have come under the writer's observation in the past seven years, and has the advantage of being suitable to the subcoracoid, subglenoid, and subclavicular varieties of dislocation, and a slight modification of it would probably reduce a subspinous dislocation. It may be described as a combination of the "Kocher" and the "traction outward" methods.

The patient being seated on a firm stool or chair, an assistant stoops down on the left side, *if the right shoulder is dislocated*, and with his left arm crossing the front of the patient's chest, places the hand firmly on the end of the right clavicle and acromion; his right arm is passed behind the patient's back and grasps with hooked fingers the axillary border of the scapula. His function is to fix the scapula, and prevent the manipulator dragging the patient off the chair (occasion-

ally a second assistant becomes necessary to hold assistant number one, if the muscles of the patient are powerful, and traction by the surgeon has to be kept on long). The surgeon, keeping the elbow at a right angle, grasps the wrist of the dislocated arm with his right hand, and the lower end of the humerus from behind with his left hand, and locks this hand against the forearm of the patient to prevent slipping. He now *quietly* and *slowly* abducts the humerus to the right angle. Traction outward is commenced as soon as the humerus is half-way up, and is steadily and quietly, but firmly, continued, at the same time gently rotating the humerus outward; in other words, drawing the arm out of the side, and taking the hand and forearm up in the air, keeping the elbow at a right angle all the time. If the head of the humerus does not travel from beneath the coracoid (in the case of subcoracoid dislocation), the surgeon places his own feet nearer the patient, and while steadily pulling, falls away from the patient, thus bringing his own weight to assist traction, and in some obstinate cases slowly rocking the humerus up and down, or from side to side, to tire the powerful muscles which are resisting, chiefly, of course, the deltoid and pectoralis major. In most ordinary cases the head of the bone is observed to be now in the glenoid cavity, and on account of the steady continuous traction the head goes in without snap or jerk. If the head is not reduced by this time, rotation outward is continued until locking occurs. Rotation inward now immediately puts the humerus right; traction is at once stopped, and the surgeon slings the reduced arm to the patient's side, keeping the hand high. If this method is applied very slowly and thoroughly, so little pain is caused that chloroform is rarely required to relax the resisting muscles.

The writer generally keeps up a running conversation with the patient during the manipulation; this serves to distract his attention, and cause involuntary relaxation of the muscles. Chloroform is occasionally required, not on account of the size of the muscles, but in highly strung, nervous men and women, who will not bear even slight discomfort, still less actual pain. If an anesthetic has been administered, the scapula is fixed in the same manner, the patient, of course, now lying down; the same traction and manipulation is gone through, but very little of each is then required. (Altering "left" to "right" and "front" to "back" in the above description will, of course, apply to dislocation of the left shoulder.)

Résumé.—Fix scapula; abduct arm, elbow being at a right angle, and apply traction; rotate humerus outward, add weight to traction if reduction obstinate, and rock humerus to still further tire the muscles if the patient is powerful, and rotate outward until locking occurs; rotate inward; sling hand to opposite shoulder.

During the last four years it has only been necessary to administer chloroform once in a recent dislocation, and the more familiar one becomes with the above method, the less frequently will an anesthetic be found necessary.

GASTROPLICATION FOR DILATED STOMACH.

HORROCKS (*Annals of Surgery*, September, 1899) reports in detail a case of gastroplication for dilated stomach due to an old ulcer which was placed near the pylorus. This ulcer, during its early stages, possibly caused spasmodic stricture of the pylorus when the stomach emptied itself. Later the fixation of the pylorus caused a difficulty in emptying the stomach. It was evident that the increase in size of the stomach and the thinning of its walls were important factors in keeping up the dilatation. Mr. Barker, in such cases, speaks strongly in favor of posterior gastroenterostomy, and condemns gastrorrhaphy as unscientific. This may be true where there is a permanent stricture of the pylorus, but where the stricture is only temporary the lessening of the stomach cavity greatly alleviates the condition. The patient did well after the operation, and for a time the pain and sickness disappeared.

A month after the operation the old trouble returned; the swelling of the dilated stomach could be easily felt to the left of the scar. On considering the case, it seemed probable that the stitches holding up the stomach had given way, and that the left end of the stomach was still in a dilated condition. The pyloric part of the stomach was fixed to the abdominal wall. About this time a case was published in *The Lancet* by Mr. Moynihan, and the various methods of gastric suture discussed. By vertical sutures with silk he had obtained a good result. As the patient was still moribund, and had received benefit immediately after the first operation, it was proposed that the abdomen should be again opened and the stomach stitched with silk thread.

On April 20 a vertical incision was made to the left of the scar of the first operation, and the abdomen opened. The stomach was found dilated towards its cardiac end, the pyloric part being adherent to the abdominal wall. The dilated part was drawn forward and six silk sutures put vertically in and out through the muscular and peritoneal walls of the stomach. The sutures were then tightened and a few additional Lembert stitches added, to give increased security. Patient did well after the operation; the wound healed without trouble. She was discharged, and has since continued in a much better state of health. Her weight when she left the hospital was six and a half stones. She is now able to take any food without pain, and has had no attacks of vomiting. The swelling of the stomach cannot be felt.

The failure of the first operation was due to the catgut sutures, which were not sufficiently lasting; and the method of holding in the stomach wall with the folds parallel to the lesser curvature is not so satisfactory as the later proceeding. The weak state of the patient during the first operation made the stitching process a somewhat hurried one. In the second operation Mr. Bennett's method was employed, and certainly gave better results.

It seems reasonable in cases of dilatation of the stomach, when lavage, diet, and medical treatment have had a fair trial, if the dilatation still continues, that an exploratory abdominal incision should be made, and some attempt made to remove the cause of the dilatation.

DIRECTIONS FOR THE STERILIZATION OF CATHETERS AND BOUGIES.

NICOLL gives the following directions for the sterilization of catheters and bougies:

Bougies.—Gum-elastic bougies will not bear heating to a temperature sufficient for sterilization. Soaking for fifteen minutes in carbolic acid solution 1 in 20, for half an hour in 1 in 40, or for an hour in perchloride of mercury 1 in 1000, renders the surface so sticky that the towel adheres in the process of drying, and the bougie becomes covered with fluff. After several soakings the surface becomes permanently dull and sticky and unfit for use. Dr. Schimmelbusch says that "a smooth bougie or catheter can mechanically be made externally free from germs by rubbing it with a piece of sterilized gauze and warm water." To test this a series of six gum-elastic bougies in use from six to eighteen months, after being employed in cases of stricture, were washed with tepid water and soap, rinsed in cold running water, and dried with thorough light friction with sterilized gauze. They were then rubbed on the surface of acid and alkaline agar tubes. In one case colonies of an unidentified coccus appeared, in another a patch of penicillium. The other ten tubes remained sterile. Six bougies soiled with pus were similarly treated; all the tubes remaind sterile. In other experiments instead of the gauze an ordinary towel fresh from the laundry was used, and similar results were obtained. It appears, therefore, that antiseptic solutions which rapidly destroy instruments are unnecessary for sterilization.

Catheters.—Red rubber catheters (Jacques) may be sterilized by boiling or steaming, or may be soaked for months in carbolic solution (1 in 20) or perchloride of mercury (1 in 1000) without damage. A rubber catheter may be used daily for six months without becoming unfit for use, if washed every day with hot water and soap, and put to soak in carbolic lotion for the remainder of the twenty-four hours. But there are certain red rubber catheters which rapidly deteriorate under repeated boiling, and all rubber catheters ultimately do so. Prolonged and repeated soaking in antiseptics has little effect. By experiments the writer has proved that rubber catheters, boiled, steamed, or soaked for four hours in the lotions mentioned, are rendered sterile internally and externally. But gum-elastic catheters, like bougies, will not stand the lengthened and repeated soaking necessary for sterilization. There is no entirely reliable method. For practice the writer has formulated the following rules:

(1) Avoid as far as possible the employment of catheters. In cases of stricture it can only be very exceptionally that a catheter is called for. Bougies, which are readily sterilized, will do all that is necessary. (2) Where a catheter must be employed, use where possible a red rubber Jacques catheter in preference to a gum-elastic. In retention from atony, spinal paralysis, reflex nervous effects, and other causes, and in many cases of prostatic retention, the former answers as well, and is as readily sterilized by boiling or immersion in an antiseptic solution as is a metal catheter. (3) Where the red rubber fails to pass, the use of metal catheters, especially by the patient, does not commend itself as free from risk of injury. Gum-elastic

catheters must therefore be used. If the urine is very septic the writer destroys the catheters used. If the urine is not very purulent or offensive, he washes the catheters externally with soap and water, and then with antiseptic solutions, which is followed by internal steaming. Those that survive he retains. When the regular use of a gum-elastic catheter is necessary, the patient is supplied with a catheter with a well-finished interior. After use he thoroughly washes it, holds it under the tap for a few minutes, and lays it aside in boric acid, weak perchloride, or other weak antiseptic. This only offers a reasonable chance of asepsis, but it is useless to expect an average patient to carry out more elaborate plans. The writer has had glass tubes constructed, which are filled with the antiseptic solution, in which the catheter is placed after use. The solution varies in strength according to the kind of catheter; for gum-elastic catheters it must be weak, red rubber catheters will stand anything.

TETANUS TREATED WITH CARBOLIC ACID.

WOODS (*New York Medical Journal*, September, 1899) was called to see a boy, aged twelve years, who had been wounded by a sharp nail which had penetrated about half an inch into the sole of his foot. Ten days later there was a stiffness of the muscles of the neck and spine. The disease was rapidly progressive. The general symptoms were attended with dyspnea and opisthotonos.

The place of injury was freely opened, and a dark tarry substance (altered blood) was scraped out. The foot was then soaked in a weak solution of carbolic acid and warm water for about half an hour.

As it was impossible for the patient to swallow, ten minims of a ten-per-cent solution of carbolic acid was used hypodermically; fifteen minutes thereafter twenty minims was injected; and fifteen minutes after the second injection thirty minims was used. Thirty minims was continued throughout the day every half-hour with half a grain of cannabis indica; at night the cannabis indica was discontinued, the pupils of the eyes being at this time very contracted. The carbolic acid solution was administered through the night, according to circumstances. If comparatively quiet, he was not disturbed, but when the interval was prolonged the dose was increased to a drachm hypodermically. There was considerable amelioration in the spasms on the second day, and the solution of carbolic acid was only administered hypodermically every two hours in half-drachm doses of a ten-per-cent solution. This treatment was kept up until the morning of the third day, when he could not swallow. Then a drachm of the solution in glycerin was administered every three hours until the spasms ceased. After the spasms ceased a drachm three times a day was given, and gradually diminished to half a drachm three times a day and kept up until all rigidity had left. Up to the third day the patient was nourished through the bowels with milk, eggs, and brandy. On the afternoon of the third day he slept for two hours, seemed refreshed, and said he felt better. From this time on he continued to improve, but the rigidity did not entirely leave him for three weeks after the attack. When he began to relax, his bowels were freely moved and his kidneys acted profusely. His urine soon after the carbolic acid was administered had the characteristic odor of the drug, and the smoky appearance was manifest on the second day. No perceptible irritation of the kidneys or bladder followed, and no permanent pernicious sequelæ. He was weak and generally debilitated by the attack, but soon recuperated, and is now to all appearances perfectly well.

Reviews.

LOVE AND ITS AFFINITIES. By George F. Butler, M.D. Chicago: Engelhard & Co., 1899.

This book is illustrative of the fact that the practical physician can at times acquaint himself thoroughly with classical literature and utilize the knowledge which he gains in such a way that he is able to decorate a rather unattractive subject so as to make it pleasant reading. The design of the book, as the author tells us in his preface, is "not so much to offer an empirical, scientific consideration of human passion, as a philosophical study of love and its relationship to such psychical as well as physiological phenomena with which the most exalted sentiment of sexual attraction is closely allied." We have already stated that Dr. Butler has succeeded in presenting his subject in such a way that it is not offensive, but that he has gotten very much nearer an analysis of the subject under consideration is doubtful; indeed, we do not believe he expected to solve the riddle. The book is of interest if for no other reason than

that it brings together many references to classical literature which bear upon the subject under discussion.

THE PRACTICE OF MEDICINE. A Manual for Students and Practitioners. By George E. Malsbary, M.D. Illustrated.
Philadelphia: Lea Bros. & Co., 1899.

In a small octavo of 400 pages Dr. Malsbary has presented for the use of students a condensed treatise upon the practice of medicine which is very evidently a compilation of the principal facts stated in larger works on this subject. It seems to be a fairly accurate condensed handbook, and so far as it goes, reliable. In a subject such as the practice of medicine, however, we believe it is necessary for every student to possess one of the standard works upon this subject, since it is only by reading complete and exhaustive descriptions of a disease, as it is met with in clinical medicine, that he will get a clear insight into the cases which he will meet in future practice.

MEDICAL NEWS VISITING LIST.
Philadelphia: Lea Brothers & Company, 1899.

Year after year we have the pleasure of noticing the appearance of this exceedingly convenient and useful list. It comes out in four forms, namely, weekly, and dated for thirty patients; monthly, undated, for 120 patients a month; perpetual, undated, for thirty patients weekly per year; and perpetual, undated, for sixty patients weekly per year. We believe that any one of these forms will be found very useful to the practitioner, according to the size of his practice. The Visiting List appears in a wallet-shaped book accompanied with a pocket-pencil and rubber, and is made of seal-grain leather. Its cost is $1.25, or with a thumb-letter index, 25 cents extra. It contains useful information in regard to the ligation of blood-vessels, with an accompanying diagram, tables of doses, and other useful facts.

ORGANIC MATERIA MEDICA AND PHARMACOGNOSY. An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Products. By Lucius E. Sayre, B S., Ph.M. Second Edition, Revised.
Philadelphia: P. Blakiston, Son & Co., 1899.

Several years ago we took pleasure in reviewing the first edition of this excellent book from the pen of Professor Sayre. The volume describes the botanical and physical characteristics, sources, constituents, pharmacopœial preparations, and the insects which are injurious to drugs. It also takes up for consideration Pharmacal Botany, and this second edition contains histological and microtechnical tests by William C. Stevens, the Professor of Botany in the University of Kansas, and a fellow worker with Professor Sayre. The volume is very profusely illustrated, most of the illustrations being made from original drawings. It is emphatically one which is intended for the student of pharmacy rather than for the student of medicine, as practically no definite information is given concerning the subject of therapeutics. As a book for pharmacal students it is to be most highly recommended, for its subject-matter is exceedingly good, and the publishers have gotten it out in a way which is attractive to the eye and which makes it easy to study.

A SYSTEM OF DISEASES OF THE EYE. By American, British, Dutch, French, German, and Spanish Authors. Edited by William F. Norris, A.M., M.D., and Charles A. Oliver, A.M., M.D. Volume IV: The Motor Apparatus, the Cornea, Lens, Refraction, and Medical Ophthalmology. Copiously Illustrated.
Philadelphia and London: The J. B. Lippincott Company, 1900.

Within the last few years we have reviewed, as they appeared, the first three volumes of this encyclopedic work upon diseases of the eye—volumes which contain an immense amount of useful information, and articles which as a rule are of very great individual value. The ability of the editors and the skill with which they have selected their contributors is an earnest of the quality of the text, and the illustrations which the present volume contains are worthy of the subject-matter. Of the more important articles in this fourth volume we make mention of that on Anomalies of the Motor Apparatus of the Eyes, by Professor Landolt, of Paris; Diseases of the Cornea, by Professor Nuel, of Liege, Belgium; and Diseases of the Lens, by Prof. William F. Norris, of Philadelphia. Another very important article is that of Haab, of Zurich, upon Ocular Lesions Dependent upon Diseases in the Circulatory System; while Mr. Swanzy writes upon Eye Diseases and Eye Symptoms in Their Relation to Organic Diseases of the Brain and Spinal Cord. Another article of very considerable interest is that of Professor De Schweinitz, upon the Toxic Amblyopias, and that of Parinaud upon the Ocular Manifestations of Hysteria. In addition to the valuable information which these pages contain in the text, copious bibliographical foot-notes are added to the articles.

PHYSIOLOGY: A MANUAL FOR STUDENTS AND PRACTITIONERS. By Howard D. Collins, M.D., and William H. Rockwell, Jr., M.D. Copiously Illustrated.
Philadelphia and New York: Lea Brothers & Company, 1899.

This is another one of the series known as Lea Series of Pocket Text-books, edited by Dr. Gallaudet, and is designed, as are the other numbers of the series we have reviewed, to provide the student with a succinct account of the physiological facts which it is necessary for him to remember in the examination-room, and in his after medical career. The book does not profess to be an original exposition of the subject. It is designed solely for the purpose that we have mentioned, and as it covers but 500 small octavo pages it is evident that it cannot be considered by any means an exhaustive compilation. So far as we have been able to see, however, the statements which it contains are accurate, and the book is worthy of the confidence of students.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science by Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D. Volume XVIII.
New York: William Wood & Co., 1899.

The present volume is exactly like the others of this series in every way so far as its make-up is concerned. We notice, however, that it contains a much better index than some of its predecessors, which is a very distinct advantage. Its pages are devoted to the consideration of Acquired Syphilis, Inherited Syphilis, and Leprosy. Naturally the pages devoted to the subject of syphilis occupy by far the greatest portion of the book. Professor Lang, of Vienna, writes the article upon Acquired Syphilis, which covers 357 pages, and which is an excellent summary of our present knowledge in regard to this disease. He considers, of course, the subject of syphilitic infection, the general pathology of the disease, and the changes which it produces in the various organs of the body, closing his article by nearly one hundred pages which are devoted to the treatment of the malady. This discussion of its treatment is excellent and is illustrated by a large number of formulæ. The article by Mr. Jonathan Hutchinson upon Inherited Syphilis, it is needless to say, deserves attention because it is written by such a celebrated authority upon this important subject. It covers about forty pages. That upon Leprosy, by Dr. P. A. Morrow, of New York, covers 180 pages, and therefore is quite exhaustive. It is freely illustrated.

In looking over this volume we are struck with the fact that all the articles are written from the standpoint of the clinician rather than that of the laboratory investigator, and Professor Lang and Mr. Jonathan Hutchinson speak in a way which indicates that the opinions which they express are derived from close personal study of the disease. Not only because the authors are so prominent, but also because the subjects with which they deal are so interesting, the present volume is to be considered one of the best in the series, and this is saying much in its praise.

CLINICAL LECTURES UPON NEURASTHENIA. By James D. Savill, M.D.
New York: William Wood & Company, 1899.

This is a small volume of 144 pages, in which Dr. Savill discusses the clinical aspect of neurasthenia in five lectures, all of which show that he has intimate knowledge of the condition of which he speaks. As we have already reviewed the English edition of this book some months ago, it is not necessary for us at this time to say anything further concerning it, other than to indicate that it may be obtained of an American publisher.

THE URINE, THE COMMON POISONS, THE GASTRIC CONTENTS, AND THE MILK. By J. W. Holland, M.D. Sixth Edition, Revised and Enlarged.
Philadelphia: P. Blakiston's Son & Company, 1899.

We are told in the preface that this little manual is intended as a syllabus for the laboratory. It is so small that it can be readily carried in the pocket, and gives all the necessary information for the qualitative and quantitative estimation of the contents of the various fluids named in its title, and for the estimation of poisons which ordinarily gain access to the human body. In order to make the use of the manual still more readily carried out, illustrations are added whenever it is necessary to indicate the form of apparatus which the student should employ. The fact that the little volume has reached its sixth edition indicates that it meets the needs of a considerable number of students.

AN ATLAS OF THE BACTERIA PATHOGENIC TO MAN. By Samuel G. Shattock, F.R.C.S. With an Introductory Chapter on Bacteriology by W. W. Babcock, M.D.
New York: E. B. Treat & Company, 1899.

The design of this little book, of less than a hundred pages, is to provide the practitioner with descriptions of the morphology and microscopic examination of the pathogenic microorganisms which infect man. The plates and the text accompanying them are taken from the last issue of the Medical Annual of England, which we have fre-

quently reviewed favorably in the columns of the GAZETTE. The publishers have thought it wise to add a considerable amount of text describing the subject of bacteriology and its practical value to the practitioner, which is written by Dr. Babcock, the pathologist to the Kensington Hospital for Women of Philadelphia. The most valuable part of the volume is naturally the plates which it contains, which are exceedingly good, both in their execution and in the fact that they well illustrate the microorganisms which they represent. The book cannot be considered a complete guide to bacteriology in any sense, but simply a little manual which can be read very much as an article summarizing the subject would be read in the pages of a medical journal.

THE MEDICAL DIGEST; OR BUSY PRACTITIONERS' VADE-MECUM AND APPENDIX. Covering the Years 1891 to March, 1899. By Richard Neale, M.D. Lond. London: John Bale, Sons, & Danielsson, Limited, 1899.

To those who have done work in medical literature Neale's Digest has been a close companion, and while the publication of the *Index Medicus* and the splendid catalogue of the Surgeon-General's Office at Washington has provided us with first-rate reference works, it is nevertheless a fact that Neale's Digest still fills the niche made for it by its scholarly editor years ago. It is with much pleasure, therefore, that we find that Dr. Neale has continued his excellent work, and has presented the profession with this valuable summary of literature covering the period since his last supplement was published. The present volume is an octavo of nearly 300 pages, arranged on exactly the same plan as its predecessors.

A PRACTICAL TREATISE ON MEDICAL DIAGNOSIS FOR STUDENTS AND PHYSICIANS. By John H. Musser, M.D. Third Edition, Revised and Enlarged. Price, $6.00. Philadelphia and New York: Lea Brothers & Company, 1899.

This book, which we have had pleasure in reviewing before in the THERAPEUTIC GAZETTE, has reached a third edition within less than six years after its first publication. The present volume may be considered to be the most exhaustive work upon medical diagnosis in the English language, as it covers nearly 1200 pages. The fact that it is written by an able clinician of wide experience, with clinical instinct, is a guarantee that its contents are well worthy of the favor which it has already received. The present edition is much larger than its predecessor, and contains a great number of colored plates and illustrations which successfully elucidate the author's text. Dr. Musser has been fortunate in having obtained a number of the younger workers in the various branches of medical diagnosis to revise and rewrite certain chapters, as, for example, that upon the Eye, the Sputum, and Nervous Diseases. Certainly no one can claim that anything which is of any importance has been omitted from these pages, and while a few old friends are to be found amongst the illustrations, they are always used to a purpose, and the great majority of them are original.

We can cordially recommend this volume, and feel sure that the reader will find in its pages any information which he may seek, as it deals with bacteriology in its relation to diagnosis, and every collateral science, microscopic and otherwise, which is needed in the determination of the disease from which a patient may be suffering.

A TEXT-BOOK OF DISEASES OF THE NOSE AND THROAT. By D. Braden Kyle, M.D. Philadelphia: W. B. Saunders, 1899.

Dr. Kyle's volume is one of 650 pages, copiously illustrated with lithographs, and in black and white pictures, and it is a noteworthy fact that most of the lithographs are exceedingly well executed. We do not remember having seen any illustrations of pathological conditions of the larynx and pharynx which seem so true to nature and so typical as the ones with which the author has improved his descriptions in the text. Another point which is of interest in connection with the publication of this book is that the author not only speaks from the standpoint of a clinical laryngologist, but also from that of a practical pathologist, and his experience as a teacher of pathology at one time in the Jefferson Medical College, and in maintaining a private pathological laboratory, has enabled him to approach his subject from a clinical and pathological standpoint, thereby making a very valuable combination. The third point of interest is that Dr. Kyle is one of those specialists who recognize that it is necessary that the patient's general condition shall always be considered when local conditions in the nose and throat are under treatment. Too often at the present day, when students on getting their degrees immediately become specialists, the specialist overlooks the general systemic condition of his patient,

and takes such a narrow view that his patients suffer in consequence. This, however, is not the case with Dr. Kyle and his book. One is impressed all through its pages with the fact that a healthy larynx cannot exist in an unhealthy body.

Still another reason why we think this book can be cordially recommended to the general practitioner is the fact that it is written in such a way as to be useful to this individual. Prescriptions illustrating the application of drugs to various diseased conditions are often given, and the text is written in a lucid manner, in which technical terms, when employed, are clearly explained. Not only do we believe that the book can be possessed with advantage by the specialist, but we can state to those general medical practitioners who read our pages that in it they will find a most valuable aid which will enable them to relieve many of the minor disorders of the upper respiratory passages.

We note with interest that Dr. Kyle urges upon practitioners the use of antitoxin in the treatment of diphtheria, and more important still, that he strongly advises large doses of it in the early stages of the disease, which doses are to be repeated if it does not readily yield to the first injection.

It is not often that we feel so favorably impressed with a book that we can most cordially recommend it, but in this case we can certainly do so both to the specialist and general practitioner.

ON THE PREVENTION OF EYE ACCIDENTS OCCURRING IN TRADES. By Simeon Snell.

London: John Bale, Sons, & Danielsson, Limited, 1899.

Mr. Simeon Snell has published his address delivered at the opening of the Section of Ophthalmology at the annual meeting of the British Medical Association, at Portsmouth, August, 1899, in the form of an admirably printed and illustrated pamphlet, which should be in the hands not only of ophthalmic surgeons who are likely to meet with the various accidents which occur in trades, but also in the hands of overseers, superintendents, and managers of factories and mills which employ large numbers of iron and steel workers. Mr. Snell is strongly of the opinion that many of the eye accidents associated with trades are preventable, provided always the men are required to employ proper protection for their eyes, and that the men themselves are properly arranged at their work. The best protector appears to be made of gauze wire, especially if galvanized iron wire or aluminum wire is used. Netting of this character made into protectors covers the eyes and the adjacent parts, the whole arrangement, according to the author's pattern, somewhat resembling the shield which surgeons occasionally use after cataract extractions. The brochure is full of instructive information, statistics, and suggestions.

G. E. de S.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

We are now embarked on a new medical year. The schools and the medical societies have again resumed operations. However, the subject that is necessarily uppermost in every mind is the war in South Africa; in its medical aspect there is special cause for anxiety. The demand of recent years for commissions in the Royal Army Medical Corps has been so insufficient, that grave apprehension has been felt of its competency to deal with an extensive call. It was hoped that the granting of military rank and the formation of a definite corps would increase the popularity of the service, but up to date this has certainly not been the case. We fancy that the cause lies deeper than this, in the nature of the British youth. If the doors of the Temple of Janus were never closed, there would be no lack of eager competition; but in time of peace the almost exclusive care of venereal disease, without the gilding of even commercial advantage, fails to charm. But happily the defect carries its own antidote with it, and the first sound of battle has called up a host of civilian volunteers far beyond the requirements of the present grave crisis. Even the elders have caught the war fever, and Sir William MacCormac, President of the College of Surgeons, and Mr. Frederick Treves—perhaps the leader of surgical practice in London—and many others have volunteered for the front. American sympathy for the righteous cause in which we are fighting has aroused very lively satisfaction throughout this country.

I would call attention to arrangements that have been made in London to meet the increasing demand of foreign students for attendance at the London medical schools.

Nine of the leading schools have agreed on the issue of a ticket admitting qualified students to the practice of their hospitals. A fee of seven guineas is asked for three months, and of ten guineas for six months, and for any longer period at the rate of five guineas for each additional six months. The cards and full particulars may be obtained on application to the "Honorary Secretary, West Wing, Examination Hall, Victoria Embankment, W. C." For obvious reasons these facilities are not extended to unqualified students, and they can only avail themselves of hospital practice on terms that have been arranged by the hospitals individually.

Dr. Ewart is now advocating the prebalnear treatment of heart disease by inhalation of carbonic acid gas, and the uses of the inhalation in cardiac dyspnea and in anginoid pain. At first sight this appears veritable homeopathy. It may be remembered that in a former letter I mentioned the application of this method of treatment to cases of leucocythemia. Ewart maintains that this treatment brings within the scope of Nauheim therapeutics a considerable number of cases that otherwise would be set down as unfit; indeed, he attributes much of the efficacy of the Nauheim bath treatment to the incidental inhalation of carbonic acid gas. Whereas balnear treatment exercises its greatest influence over the period of recuperation, the inhalation treatment is indicated in the stage of failing cardiac energy. Ewart lays it down that those cases will derive most benefit in which the elements of respiratory distress and cardiac pain predominate. Like many other drugs that in large doses possess a toxic and baneful effect, carbonic acid gas has in lesser doses an active physiological effect. It would seem that none of the carbonic acid gas inhaled passes directly into the blood-stream, but by raising the partial pressure of that gas in the lung prevents the liberation of some portion of the same gas already in the blood. Short of the asphyxial state induced by large doses of an irrespirable gas, Ewart enumerates the following as the chief physiological effects of smaller doses of carbonic acid gas, inhaled experimentally in moderate concentration: (1) A feeling of internal warmth, and after a time some flushing; (2) a strong desire to breathe, and particularly to breathe out; (3) an excited state of the circulation, which may amount to throbbing or palpitation; (4) a slight giddiness and headache supervening after a while in some susceptible subjects; (5) general anesthesia is not brought about by moderate inhalations; (6) cutaneous anesthesia has not been obtained as a result of the inhalation, but only by the local action of the gas upon the skin. Side by side with these effects of inhalation of carbonic acid gas on the healthy subject, Ewart sets the observations of its effect on patients with cardiac symptoms. The subjective effects are: (1) Rapid diminution or cessation of cardiac distress or pain; (2) a feeling of increased freedom of respiration. The objective effects are: (3) a visible increase in the depth of respiration; (4) a marked improvement of the pulse; (5) an obvious improvement both in the complexion and expression of more than transitory duration; (6) by systematic repetition progressive improvement in the patient's general condition, as well as in the cardiac and respiratory functions. Thus it will be seen that the direct effect upon the cardiovascular system is reenforced by the greater range of respiratory movements, which so to say open up wider channels by which the blood may find its way through the lungs.

In the discussion that ensued upon the paper Dr. Barr dealt somewhat severely with Ewart's views, on the ground that the tension of carbonic acid gas in the blood is so vastly higher than that of carbonic acid gas in the atmosphere that only an increase of asphyxial amount in the atmosphere could lead to absorption into the blood. However much one may disagree with Ewart's conclusions, one cannot accept the validity of this argument. In the first place, Ewart distinctly asserts that the effects are due not to increased absorption, but to decreased decarbonization; and it is self-obvious that however slight the increase of partial pressure of carbonic acid gas in the atmosphere, there will be a parallel decrease of blood decarbonization, which may produce marked therapeutic effects. This same fallacy underlay the whole of Dr. Barr's criticism, which may therefore be set aside as not refuting the theory. We do, however, agree with him that more evidence is necessary before the inhalation treatment of failing heart should be admitted within the pale of practical therapeutics.

Furneaux Jordan read an interesting paper to the British Gynecological Society on the after-results of forty-three cases of removal of both appendages for disease, and on twenty-four operations for myoma of the uterus. From the former set of statistics he

finds uniformly good results in the relief of inflammatory diseases. The severity of the artificial menopause is much more marked in young women. Furneaux Jordan has not paid attention to the blood changes incident to the artificial menopause, which would have been of special interest in connection with some recent theories of the origin of chlorosis. He maintains that if the appendages are completely removed menstruation ceases entirely, and that the apparent exceptions are due to the difficulty in some cases of insuring complete removal; and that, granted removal be complete, hysterectomy will seldom be necessary. He draws attention to the high mortality of cases of pyosalpinx treated by abdominal section, and the frequency with which the drainage-tube leads to a weak spot in the scar. For these reasons he prefers the vaginal route for treatment of pyosalpinx whenever possible. In the second series of operations, Furneaux Jordan found that the disappearance of myomata was almost invariable after removal of both appendages, and that the menopause was not so severe as when the operation was undertaken for inflammatory disease. This he attributes to the greater age of patients in the former instance, and this seems to be confirmed by the fact that the menopause due to hysterectomy was also less severe than the menopause due to removal of both appendages. Reviewing the whole question of the treatment of myomata, he formulates certain conclusions: That there are some cases in which no operation need be undertaken, and which can be satisfactorily treated by ergot and hydrastis, and rest, provided the patient be kept under observation; that in cases in which from loss of blood or other cause the patient's condition is so enfeebled that the major operation would endanger life, removal of the appendages should be preferred to hysterectomy—for large tumors, however, abdominal hysterectomy is the proper treatment; finally, that in cases where it is necessary to interfere with small myomata there is a choice of procedure—in a stout patient he would prefer vaginal hysterectomy, in one with a small vagina removal of the appendages.

Dr. Barkett, of Leeds, makes an interesting observation on the treatment of xeroderma by nitroglycerin. He obtained a large measure of relief in a very intractable and inveterate case in a child by the administration three times daily of one minim of liquor trinitrinæ, B. P. (nitroglycerin), with five minims of nitrous ether. He suggests that the result is due to flushing the skin with blood by dilating the cutaneous capillaries, and instances the oily feel of the drunkard's skin similarly induced by the persistent imbibing of alcohol.

Jackson Clarke recommends an improved operation for hammer-toe. He excises the head of the bone by a curved dorsal incision over the prominent head of the second phalanx, opening the joint, dividing the lateral ligaments, and removing the head and a little more of the second phalanx. He reunites the divided expansion of the extensor tendons by a fine catgut stitch, and cuts away on the proximal side of the incision a portion of skin, including the site of the center of the corn previously removed by treatment. There is no tension, and therefore none of the pain incident to other methods of operation, when the wound is sutured with the toe in its straightened position.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

One of the most important medical events of the last month in Paris was the session held by the Society of Medicine and Professional Hygiene, at which Dr. Calmette delivered a speech on the bubonic plague. Dr. Calmette is a comparatively young man, who has already published some important works on toxicology. He is specially known for his researches on antivenomous serum against snake-bites, and on the bacillus of the plague. Dr. Calmette is director of the Pasteur Institute at Lille, and was sent to Oporto to investigate the origin of the plague, and the means that can be employed to prevent its spreading.

In his speech Dr. Calmette described the work of Yersin, who discovered the microbe of the plague at about the same time as Kitasato. This microbe is characterized by the following points: It is short, slightly curved, is more highly colored at both ends than in the middle, is found in mild cases in the glands, and in the blood in severe cases. The cultures are more or less indifferent in aspect, with the exception of that in bouillon, in which after twenty-four hours there is a slight cloudy formation on the top of the tube, which disappears in the liquid on shaking it. After two or three days this cloudy formation settles in the bottom of the tube. Dr. Calmette insisted on the result of the inoculation of rats, mice, and

rodents generally. Yersin has already studied this question, and shown that an epidemic amongst rats and mice usually precedes its outbreak amongst men. Fleas have been shown to be the real cause of its rapid propagation, the former emigrating from the dead bodies onto animals of the same or of a different species. Another form of infection, such as the pulmonary one, which caused the death of Dr. Müller, of Vienna, shows there are sources of infection by ingestion, by the bite of fleas, and lastly by the lungs, from breathing air infected by desiccated sputa.

On arriving at Oporto Dr. Calmette tried to discover the real source of the infection. The bubonic plague was announced officially at Oporto on the 9th of August, but the first cases date from the 5th of June. Dr. Ricardo, the director of the hygienic service at Oporto, sent a report to the government on July 9, but for some unknown reason the latter was left unnoticed at the ministry. A careful examination of the arrivals in port showed no vessel coming directly from an infected region could be suspected, with the exception of the *City of Cork*, an English boat from London, which had brought from the latter port rice, Ceylon tea, jute from Calcutta, Bombay, and Mauritius. All these articles had been unloaded at least two weeks before the outbreak of the epidemic, and the last shipload was made up of wheat and codfish from New York. The first case was that of a stevedore who had helped unload the vessel, and who died in forty-eight hours. The second case occurred on the 7th of June, also a stevedore, who had helped unload the cargo of codfish.

The plague began to spread all over the city. Dr. Calmette gave a graphic description of the poorer quarters of Oporto, and showed how squalor and misery were to be incriminated in the spread of the epidemic. The patients seen by Dr. Calmette had generally reached the fifth day, and were in a comatose condition in most cases. The cases run their course in about seven to eight days, and at the time they were seen the symptoms observed beside the bubonic glands were those of a severe attack of typhoid fever. Great pain is noticed in the axilla and groin, especially on pressure; symptoms of myocarditis are soon perceived, also pulmonary edema and swelling of the mesenteric glands; in some cases large carbuncles with a black center form on the skin (black plague). In other cases the plague showed itself under the aspect of a case of typhoid pneumonia, with all the ordinary symptoms on auscultation, and brick-colored sputa containing large quantities of bacilli.

When he arrived at Oporto Dr. Calmette found nothing had been tried in the way of antitoxic serum, as the results of Yersin's labors in India had not been sufficiently clear to indicate a real efficacy.

A commission was appointed at the request of Dr. Calmette, which was asked to follow out the experiments. The first were carried out on the mouse and the monkey. Preventive inoculation was entirely successful, as well as curative inoculation. In some cases the injection had to be made into the venous circulation. Dr. Roux had been able to prepare some excellent serum by injecting into horses gradually increasing doses of bubonic toxins. It was this serum which Dr. Calmette had brought with him. Forty cubic centimeters was injected into the abdominal wall the first day, and as much the second day. The temperature went up after two hours from 39° to 39.8° or 40° C., then gradually went down after twelve to fifteen hours to 38°. If no further dose was given, the temperature rose again, and Dr. Calmette found the best way was to give small doses twice a day, as the bubonic plague is a form of septicemia, and the treatment differs slightly from that of lockjaw or diphtheria. A clear proof of the beneficial effect of the serum was given by the microscopic examination of the blood. On cultivating one drop the first day, thirty-two colonies were found; two only were found on the second, and none on the third day. The death-rate was considerably decreased, since instead of 43 4 per cent of mortality before the 3d of September, it went down to 13 per cent, once the treatment was rigorously applied. There were 104 cases, with fourteen deaths, five of which died in the twenty-four hours following admission; of these five, one died of tuberculous meningitis, one of puerperal fever, and one of bubonic meningitis, with ulcerations of the intestine. In some cases intravenous injections are indicated. All the employees of the hospital were vaccinated, without untoward effects, and none caught the plague. The effect of the vaccination does not last more than twenty days.

Dr. Calmette ended his report by indicating the reasons why the plague has not been stamped out completely. The disease had spread all over the city, and compulsory vaccination could not be applied.

The following are the best means calculated to stamp out any outbreak of the plague:

1. Complete isolation of all cases in a special hospital.

2. Destruction by fire of all houses in which cases have taken place.

3. Obligatory vaccination of all those who are or have come into contact with patients suffering from the plague.

4. Complete destruction of rats and mice by incineration.

PARIS LETTER NO. 2.

By Robert Hiram Turner.

In the last Paris letter a promise was made to say a few words about the Bal de l'Internat, and to give an account of it, as we thought it would interest your readers. The Bal de l'Internat, such as it is, is of recent creation. Some eight or ten years ago the medical students flocked to the Bal Bullier, and the lord of misrule reigned supreme. Things have changed since then, and though more decorous, the proceedings are none the less very interesting.

This event took place on October 16. At noon in the Salle St. Jean of the Hôtel de Ville the internate question was read out to some 600 externes gathered to compete for the thirty-four places of interne advertised for the year. A description of this competition and the examinations that are passed has already been given in the Therapeutic Gazette.

The questions given this year were upon the upper maxillary nerve and the complications of diabetes mellitus. These questions were not appreciated very much, as about one-third of the students left the hall immediately. One must admit that a thorough knowledge of anatomy is necessary to be able to write ten to twelve pages of foolscap on the upper maxillary nerve. The questions not drawn were: Muscles of the Soft Palate, Abscess of the Brain, and Azygos Veins, Superior Vena Cava, and Tetanus.

The young men who took part in this examination were invited to a champagne supper by their seniors, and at about half-past ten the different *salles de garde* began to gather at the "Bullier." Many of your readers have heard or even seen this famous dancing hall, which vies in reputation with the celebrated Moulin Rouge situated on the Boulevard de Clichy. The first mentioned establishment, formerly known under the name of the "Closerie des Lilas," was once an enclosed garden, somewhat like the Jardin Mabille, and is situated on the Boulevard St. Michel, near the Observatoire. The writer of this letter, who happens to be the *économe* of the *salle de garde* of the Hôpital Boucicaut (*i.e.*, the one chosen by his colleagues to see to the management of the *salle de garde* and to preserve the law), had stowed away his guests in eight or nine carriages, which took them to the Boulevard St. Michel. On arriving we found a huge crowd had gathered to see the fun. Some of the men had come in "tapissierès," or *chais a bancs* (large carriages for the races). Each man had to show his ticket at the entrance, signed and countermarked by the head of each *salle de garde*. About twelve hundred invitations for the students had been sent out, and six hundred cards given to the female population. Marcille, one of Tillaux's aids, a stalwart young man with iron biceps, stood at the door ready to thrust forth any one not appearing in some eccentric fancy costume, while my colleague, Tissier, who has been these last two years the leading spirit in the organization of these balls, superintended and gave orders.

Once inside the scene was dazzling. Every conceivable sort of fancy dress had been put on, very few, however, being of a medical stamp. The Lariboisière Hospital, one of the largest in Paris, comprising a staff of nineteen house physicians and surgeons and seventy externes, had arranged one of the verandas running around the hall in a most artistic manner.

Some dancing was carried on in a rather desultory way until about twelve o'clock, when the great event of the ball—the cake walk, so to speak—took place. A certain number of hospitals had arranged their costumes in such a manner as to indicate some tableau vivant, and each *salle de garde* was to go around the hall twice, passing before a jury composed of five or six physicians and surgeons of the hospitals who had accepted invitations. The first prize was carried off by Lariboisière, which had taken as text, "The descent of Don Juan into the infernal regions." Don Juan was represented by Herrenschmidt, one of the internes of Lariboisière, surrounded by three or four damsels imploring his compassion. All the various

tortures of Sisyphus, Tantalus, and others were represented most admirably. The second prize went to La Charité, the triumph of Venus. The third prize was given to St. Antoine, the largest hospital in Paris, which figured a Japanese procession. The fourth prize went to Cochin, and the fifth to Boucicaut. We were a comparatively small number, but we were, with the exception of the Salpêtrière, representing the Spinal Cord, the only medical procession. We hardly think we need remind our readers that Mme. Boucicaut founded this hospital, so we figured the apotheosis of Madame Boucicaut.

First came a man dressed in a blue suit, like one of the liverymen of the Bon Marché, holding a large red umbrella over his head; then came a model in pasteboard of one of the hospital wards, with lights inside shining through the windows, a female figure dressed in green silk, painted over with pond lilies to represent the central fountain in the yard, and other figures representing the gardens; then the head of the *salle de garde*, accompanied by four acolytes dressed to represent the pavilions, with hats built in the form of ventilators; and lastly a huge structure, on which a bust of Madame Boucicaut had been placed.

The ball was over at about four o'clock in the morning, and everybody went home more or less gay. During the whole progress of the ball I only saw one man intoxicated, which speaks after all pretty well for such a gathering; and besides, any attempt at indecorous behavior was frowned upon much more than in the olden time.

RELAPSE IN SCARLET FEVER.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: That relapse in scarlet fever is possible must be admitted, but the occurrence is rare and is scarcely mentioned by most writers on pediatrics.

On September 15, 1899, I was called to W. J., a delicate lad of nine years, and found a temperature of 103°, with rash and sore throat. As I did not see him till after dark it was impossible to determine the nature of the disease with certainty, but on the following morning it was apparent that the disease was scarlet fever, as an abundant rash with angina and involvement of cervical lymphatics demonstrated. The temperature after three days gradually subsided to the normal, and desquamation followed.

On October 4, nearly three weeks after the original attack, being recalled, I found a temperature of 105.5°, due apparently to indigestion, as he had been continuously overfed. Treatment seemed to exercise very little influence over the temperature. On the second day, with the temperature at the same point, slight tumefaction of the inframaxillary glands was present, and on the third day, with the temperature still above 105°, a characteristic rash appeared on the lower extremities, which further observation showed to be a genuine scarlet rash. The angina returned, and every indication pointed to a genuine relapse from a reinfection. Desquamation occurred only once, as he was in the midst of it when the relapse occurred.

Holt speaks of relapse as a possibility, but no other writer with whom I am acquainted mentions it. It seems to me important that the possibility should be recognized, as the uncertainty as to the cause of the high temperature in this case was instantly dispelled by the recognition of the rash.

A. J. ROSENBERRY.

OAK PARK, ILL.

DILATATION OF THE STOMACH AND BOWEL.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: The tribute paid to gynecologists by Dr. Boardman Reed, of Philadelphia, in his article on stomach and bowel dilatation and displacement, is I think a doubtful one. On this point I do not, however, care to dwell, other than to say to the learned gentleman that he too may have a peculiar *penchant* for abdominal massaging.

I wish to say that the Doctor may be correct in a few things, but when he points to movable kidney as resulting from faulty modes of dress, the author cannot bring proof to support his assertion, for Drummond states that in the majority of cases there is a congenitally relaxed condition of the peritoneal attachments (mesonephron). Again, out of 300 or more cases 210 were traceable to the relaxation of abdominal walls which follows repeated pregnancies. Since the worthy Doctor has aimed a blow at the solar plexus of the gynecologist, let me ask him if he has massaged a displaced kidney back to its anatomical position and firmly fixed it. I presume he may

have caused many indolent, obstipated men and women to pay due homage to their alimentary canal through his efforts to stimulate peristaltic motion and assist nature.

If the good Doctor will turn to anatomy, he will there learn how useless it is to massage a dilated stomach when the transverse colon is compressed by its anatomical relations to the superior mesenteric vessels and nerves. On reflecting a dilated stomach it will be found that the transverse duodenum where it crosses the lumbar vertebra is itself crossed by the superior mesenteric vessels and nerves, which, compressing the duodenum at this point, is the great factor in bringing about stomach dilatation. Dr. Byron Robinson, one of the closest and most original thinkers and observers, has time and again called attention to this point, and has through post-mortem examination given absolute and undeniable proof of the correctness of his observation.

Faithfully yours,

J. A. McDonell, M.D.

MALARIAL HEMATURIA AND QUININE.

To the Editor of the Therapeutic Gazette.

Sir: During the last year the subject of malarial hemoglobinuria, especially in regard to the use of quinine in the treatment of the disease, has been discussed with much diversity of opinion in the leading medical journals, notably in the Therapeutic Gazette. The disease is quite common in the swamp countries of this State, where the pernicious forms of malaria are most prevalent. As the disease appeared here during 1898 and the early spring of 1899 it was marked with great abruptness in onset and duration, showing the type of the most intense infection, and unless combated with prompt and efficient treatment the mortality was exceedingly high. Last year was an exceedingly wet year, the wet weather lasting into the spring of 1899, and malarial diseases were much more prevalent and were of a much more malignant type. From February, 1898, to March, 1899, I treated eleven cases of malarial hemoglobinuria, with one death. Death will take place in from twelve to forty-eight hours in untreated cases, or in cases not efficiently treated. In this we have a disease which without efficient treatment means almost inevitable death, but with prompt treatment of the right kind most cases get well.

The patient I lost was a young lady, Miss B. J., aged sixteen, who had a relapse after about twenty-four hours of apyrexia and after the urine had been clear for forty-eight hours. The relapse took place with a paroxysm about twelve o'clock at night. The chill was soon followed by the voiding of large amounts of bloody-looking urine. Eight hours later I saw the patient, and found her much prostrated, owing to the fact that the previous attack, which had lasted about thirty-six hours, was severe, and the paroxysm she was just recovering from had also been very severe. Her temperature at 8 A.M. was 100° F.; pulse 125, small and compressible. There was moderate jaundice and profuse perspiration. At 9 A.M. she began to feel chilly, and soon was in a hard shake, which lasted about an hour, during which time there was much pain complained of in back, limbs, and bowels. Soon after the chill had ended the temperature registered 106° F., and there was great restlessness. A small amount of almost black urine was passed soon after the chill, and after this not more than a tablespoonful at a time was voided. About eighteen hours later the patient died in convulsions. Diuretics had no influence on the excretion of urine. This patient had received quinine during the first attack, with prompt arrest of the paroxysms and clearing up of the urine, but evidently the infection had not been broken but only retarded. The quinine was omitted too soon, the mother, who was the nurse, failing to continue it as I had prescribed (as she took a chill and neglected my patient).

Some of my cases were made mild by early treatment, and some of them had had the second or third paroxysm after the onset of hemoglobinuria when first seen. These cases all ran a severe course; death in some of them seemed inevitable, but fortunately prompt treatment soon arrested the disease.

In all my cases the hemoglobinuric attack had been preceded by one or more well defined malarial paroxysms, some of them having had the quotidian or tertian type for some weeks, and one patient had suffered from a double quotidian intermittent for about one week before the onset of hemoglobinuria.

In most of the cases just prior to the onset of hemoglobinuria the paroxysms come with more frequency. A quotidian is often con-

verted into a double quotidian or a triple quotidian, etc.

A patient, a girl of eleven years, was seized with a violent paroxysm, and at about the end of the chill a large amount of bloody-looking urine was voided. This characteristic brownish-red urine was voided at frequent intervals until about eight o'clock, when the urine cleared up to almost normal, and temperature went down to about 99° F., with profuse sweating. I saw the patient at 8 A.M., and about half an hour later she was taken with another severe chill. The temperature soon registered 104° F., the pulse very rapid and feeble; there was partial cyanosis, great restlessness, and the patient expressed a sense of impending death. Jaundice rapidly took place. Large amounts of almost black urine were voided at frequent intervals. Soon after the onset of the hemoglobinuria, before I saw the patient, the mother had administered a teaspoonful of nitrate of potash, and had also given calomel and turpentine freely, but with no results. (I mention this because some physicians rely on this as the sole treatment, but I have never seen it do any good towards aborting the attack.) I at once began the use of stimulants, strychnine, digitalis, etc. Calomel in about five-grain doses was given every hour until bilious actions were produced. Enemata were given freely to hasten the action of bowels. Fortunately the stomach seemed in good condition to receive medicine, which is uncommon in these cases, consequently I relied on this organ for the absorption of quinine. Sixty grains of sulphate of quinine was dissolved in a solution of hydrochloric acid, and the full amount was consumed in about ten hours, by the end of which time there had been several actions from the bowels. The fever was almost gone, and the urine had cleared up to almost normal. Diuretics were given in addition to symptomatic treatment. There was no further paroxysm. The patient was very anemic for quite a time, and iron, quinine, and strychnine were given freely. In this case I gave more quinine in proportion to age than I ever gave before or have ever given since, and the results were more prompt than in any case where less of the drug was given. I gave this large amount because I well knew that another paroxysm meant death to the patient.

In severe cases of hemoglobinuria large proportions of the red blood-corpuscles—perhaps one-fourth to one-third the entire amount in the body—are destroyed at one time, hence the great amount of hemoglobin set free in the blood, of which a large part is to be eliminated by the kidneys, perhaps some by the bowels, as I have seen large amounts of wine-colored fluid passed by the bowels after a paroxysm of malaria of other types, attended with great prostration. After the patient has suffered from a few paroxysms we have the type of the most intense anemia, the face and ears become colorless and waxy, and the rosy-tinted cheeks of other fevers are never to be seen. As we sometimes see hemoglobinuria from severe burns or from exposure to severe cold ushered in by a chill, is it not probable that the hemoglobinuria of malarial origin is also due to the destruction of red blood-corpuscles? In each case we have hemoglobin set free in the blood in sufficient amount to give rise to hemoglobinuria. The jaundice is more probably hematogenous owing to the fact that there is such a great quantity of hemoglobin set free in the blood, a part of which is transformed into melanin and bile coloring matter. Also the jaundice presents the symptoms of the hematogenous other than the hepatogenous form. Lastly, the rapidity of its onset would prove that it is hematogenous in character, as it often occurs within six to ten hours after the first paroxysm. The symptoms of melanemia often appear within two hours after the chill. There are large amounts of bile produced by the liver and expelled by the bowels, if free purgation is obtained. There is great tendency to congestion of internal organs. In most cases there is nausea and vomiting during the first few days, so that drugs that are to be absorbed must be administered other than by the mouth.

I will not attempt to describe in detail all the complications and symptoms, but suffice it to say that my conclusions are that the disease in question is truly malarial in origin, that it presents more or less sharply defined malarial paroxysms, and that in most instances it can be arrested by prompt antimalarial combined with efficient symptomatic treatment. I draw my conclusions from the eleven cases I have treated and several cases I have known to be treated without quinine. All of those cases treated without quinine died.

I saw one case of hemoglobinuria or hematuria which was continuous, and had no paroxysms, the temperature being low, etc. This patient was treated without quinine and made a good recovery after four or five days.

It is probable that this was not malarial in origin, as it presented no paroxysms. There was no great urgency for prompt arrest of the disease, therefore tonics and restoratives were resorted to and the patient was treated on the expectant plan. I mention this case to show that all cases of hemorrhage from the kidneys are not identical, and that in drawing conclusions and decisions in regard to treatment these subjects should not be forgotten.

Suppression of urine is met with frequently in advanced cases where there is great destruction of blood and the consequent elimination of large amounts of hemoglobin by the kidneys. This is most probably caused by blocking up of the tubules and glomeruli of the kidneys by granules of hemoglobin. When this takes place to any marked degree I doubt if any case could recover.

As to treatment we have a specific in quinine if used in such cases as have come under my observation. Calomel in large doses, five to eight grains every one or two hours, should be given and aided by frequent large enemas. We should stimulate freely. If there is great restlessness morphine ¼ grain and atropine $\frac{1}{100}$ grain does good. If there is collapse or a tendency to it trinitrine $\frac{1}{100}$ to $\frac{1}{50}$ grain with atropine $\frac{1}{100}$ grain is of great utility. The first named drug may be given every thirty minutes if required. Blisters over the stomach and hot turpentine stupes to the bowels are employed if called for. We should excite the flow of blood to surface by briskly rubbing with hot mustard solution. Diuretics should be given. Cold water externally is useful for protracted high temperature. Unfortunately patients often cannot take and retain much cold water, as the stomach is nearly always irritated. Aside from the symptomatic treatment, our most hopeful aim is to arrest the progress of the disease, and as we have such profound infection it takes larger doses of quinine to arrest the paroxysms. The drug is not promptly taken up and assimilated as in the milder forms of malaria, and for this reason we must give larger doses, and give them in such a way that they can most readily enter the system. Giving quinine in too small doses and in a way not to be readily taken up, and waiting too late to give it, have caused many to abandon its use. If they gave it too late to keep off the paroxysm, or did not give enough, it did no good and was consequently abandoned. The patient should be fully cinchonized at least three hours before the paroxysm is to come on, and as we do not know when to expect the paroxysm I make it a rule to begin its use as soon as I see the patient, if he is not then having a chill. It acts more promptly if given during the decline of the fever, but if we wait for the complete remission or intermission, as it may be, it is then too late to prevent the succeeding paroxysm in most cases. I use the sulphate or bisulphate of quinine dissolved in acid solution. If we use the bisulphate in saturated solution without the use of acid it is partly recrystallized by the alkalinity of the tissues and cannot be absorbed. I have used fifteen to twenty-five grains of the bisulphate in saturated solution without acid and failed to produce cinchonism. In severe cases I have given from thirty to sixty grains hypodermically within one or two hours, and when I used such amounts there was no return of the paroxysms. If we heavily cinchonize the patient the paroxysms stop and the urine clears up in from six to thirty-six hours, and in from eight to forty-eight hours the fever has disappeared. If there is an intermission in the hemoglobinuria at the end of the paroxysm, and we prevent the next paroxysm with quinine, there will be no return of it. I have given as much as 100 grains of quinine to an adult male with the happiest results. When I have used the most quinine I have had the most prompt results.

To those who believe the disease is produced by quinine I will say that some of my cases had not taken any quinine, while some of them had taken small amounts but not enough to arrest the disease.

J. Wm. Roop, M.D.

Snyder, Ark.

[It will be recalled by our readers that the Gazette has published much reliable literature showing that quinine must be used cautiously, if at all, in these cases.—Ed.]

Notes and Queries.

A WRONG DOSE

On page 748 of the November issue of the Therapeutic Gazette, in the second column, the dose of tincture of gelsemium and veratrum viride is given at from 3 to 5 drachms. It should be drops. This error occurred in the journal which published the original article, and we regret that it was not discovered by us before.

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